The Builder.

VOL. XXII.—No. 1137.

*Robert Stephenson.**

THE eventful though comparatively short life of Robert Stephenson may fitly be divided into two periods,—the first that in course of which he most materially aided in maturing and carrying out the great ideas of his father and others; and the last that wherein he originated as well as realized great ideas of his own.

Of the first of these periods, of course, we shall first speak in our brief review of the "Life" now before us. Mr. Jeaffreson has manifested great diligence as well as literary ability in the collection and use of a mass of materials which now for the first time may be said to afford the public a full view of the life of the younger Stephenson, apart, as far as possible, from that of the elder, with whom, nevertheless, during the first period of his life, he was intimately associated.

It is rather satisfactory than otherwise to find that a search for ancestors has failed to elevate the forefathers of the Stephensons into either noblemen or kings; no connexion even with the more respectable Stephenson families of Newcastle having been established; which speaks well for the fidelity of the author's researches. However,—

"A gentleman of high attainments residing in the neighbourhood of Newcastle, in answer to inquiries for ancestors in the male line of George Stephenson, stated that George Stephenson, on a certain occasion, said that his family were natives of Castleton, in Liddisdale, and that his grandfather came into England in the service of a Scottish gentleman."

It is a somewhat singular coincidence that the name of Stephenson,—only spelt in the Scottish mode, with the slight difference of a *v* in place of *ph*, and which mode, perhaps, George, or his father, had they been spellers, ought, being of Scottish origin, to have adopted,—had risen into some celebrity in the engineering line, at Edinburgh, just before George arose out of the coalpits of Northumberland into the light of fame. "Mr. Stevenson, the engineer," was a well-known name in Scotland at that time; and it may be that the families were related.

The grandfather of Robert Stephenson was a fireman, as his father, George, was a breaksman; and he himself began life before his father cast off the slough of poverty and humble occupation; so that, while obtaining the elements of education at a sixpenny-a-week school, he was made useful in carrying the miners' picks to and from the blacksmith's, on his way as he went and came.

Of this we feel assured, that Robert Stephenson, who refused the honour of knighthood in his own country (though, by the way, he accepted it at the hand of the Belgian king), would *not* have regarded himself as any nobler in origin had his sire been a knight but not George Stephenson. His was a father of whom, on the whole, he might well be proud; and, modest as he naturally was, he *was* proud of his father.

It was on the 16th of October, 1803, according to the local Register, that Robert Stephenson was born, at Willington, notwithstanding that Robert's birthdays were always held in November, and he had the notion that he was born in that month. The child—"the father of the man"—was looked upon as "a wee sickly bairn, not made for long on this earth." His mother was consumptive, and died when he was three years old; but, though tainted from the maternal side, Robert inherited his father's strength, both of body and of brain; and the delicate youth grew up to a healthy and vigorous manhood. The domestic guidance of his earlier years fell mainly to the lot of his "aunt Nelly," a sensible and pious elderly maiden sister of his father's; but George was not remiss in his own peculiar style of instruction. Robert, for example, took a fancy, while at school, that he would rather like to go a-gleaning in the fields with his aunt than trudge a mile or two to school, and stay there every day; and his father, who had a high idea of the advantages of that "eddication" of which he was himself so devoid, at once allowed little Bobby to have his way, but with this proviso, that he was to follow his aunt throughout the day, gleaning in earnest, and not merely playing at it. "Weel, Bobby, hoo did the' come on?" asked his father at the close of the first day's gleaning. "Vara weel, faither," answered Bobby, stoutly. To the same question, next evening, the reply was "middlin," with a little less assurance; and on the third, his reply was, "Oh, faither, warse an' warse—warse an' warse: let me gan to the schuil agyen." With a sardonic smile, no doubt, the grim but efficient instructor of youth let his son have his own way in this request too; and next day, which was Sunday, he took him kindly on his knee, where he had often been, and told him that school was the fittest place for the like of him, and that he should thank God that he (unlike his father) did not require, in his childhood, to work hard all day for a few pence. This was, indeed, a sermon fit for a day of rest, and its influence on Robert Stephenson, we doubt not, was lasting, as must have been many another lesson of a like order emanating from so sagacious a master.

Of Robert Stephenson's boyhood there are not many anecdotes extant. He is said to have been rather a mischievous "hempy," but withal given to amusements of a somewhat higher order than those of other boys. He highly amused his father on one occasion as he watched him touching with the copper wire of his electric kite the tail of Anthony Wigham's cow, as it peacefully grazed in an adjacent meadow; but, though George witnessed the cow's cantrips with high glee, his countenance fell when Bobby adjourned from the "coo" to his father's own pony, which he next gave an electric fillip, on which his father seized the pony's whip, and rushed out upon the "mischievous scoondrel" with a threat to "pey" him for it,—a payment which Robert did not wait to receive.

The earliest "drawing" by Robert Stephenson's hand of which there is any record was that of a sun-dial, copied from Ferguson's "Astronomy," and presented by the lad, in 1816, as a token of gratitude to his father's benefactor. This drawing set both father and son to the construction of a real sun-dial, which was fixed over George's cottage door, and there it shows the time even now that both are in eternity.

Robert left school in 1819,—the year in which his father began the construction of his first line of railroad, the Hetton Colliery line,—and was apprenticed to a mining engineer, then acting as the viewer of the Killingworth Colliery, of which his father was at that time enginewright. Even George was then a young man, being only twenty-two years older than his son. Robert entered on his working life with exceedingly economical ideas. He never spent a single penny, it is said, on anything, without first asking himself Sydney Smith's three questions,—Is it worth the money? Do I want it? Can I do without it?

In 1821, when he was about eighteen years of age, Robert was appointed, by his father, as assistant in the survey of the Stockton and Darlington line of railway, of which George had been appointed engineer-in-chief; and such was the pride of the father in his son, that when the task was finished, the name of Robert Stephenson was inscribed upon the survey map as the engineer. Before the survey was made, however, George gave him a well-filled purse, and let him go to London for a holiday. Robert kept a brief journal of his visits to "Sommersite" House, and other London sights, from which it appears that he was not even then very deeply versed in the art and mystery of spelling, any more than his worthy father. After the survey Robert went to the Edinburgh University for a few months, and won a book prize in the Natural Philosophy class, notwithstanding his educational imperfections. Highly as his father estimated certain branches of education, and especially mathematics, he had no ambition that his son should have the education of a gentleman; else he could have well afforded to have sent him to Cambridge, and given him a regular college education. His determination was, that "Robert maun wurk, wurk," as *he* had worked before him.

The next great event in the life of Robert Stephenson was the appearance of his name (though he was then only twenty years old), as the head of the engineering firm of "Robert Stephenson & Co.," which George had founded in 1824, in association with Mr. Pease, and two others, as well as with his son Robert, thus manifesting anew his singular abnegation of self in favour of his son. Robert, however, was intended to act the part of actual head, or superintendent, of the business; and it went sorely against the grain with George when he found his son shortly afterwards greatly bent upon the acceptance of an offer of employment as superintendent of a "Colombian Mining" scheme, for the working of gold and silver mines, and other purposes, in Spanish America. Little thought Robert Stephenson, at that time, that the gold and silver mines which were to yield him 30,000*l.* a year, lay—not in the new world, but—in the old, and more especially in his own native country. The Spanish American scheme was a failure; but Robert, having engaged to remain out for three years, felt in honour bound to fulfil his engagement. While in America, however, he obtained valuable life experience, such as in the command of a set of turbulent workmen, who were greatly inclined to despise and disobey "the clerk," as they depreciatingly called him. On one ocasion, while they were drunk, they fairly mutinied, and were threatening a personal attack when he came quietly in among them from an adjoining room, where he had overheard the threats, which they intended him to overhear, and sat down among them unarmed, merely remarking that as they were drunk and he was sober, he had an advantage over them, of which he had no desire to avail himself if they were willing to wait till morning. As he lighted his cigar, one after another slunk out till the place was cleared, and Robert sat calmly smoking within sight of them, while they were trying to screw their courage up to an actual revolt which never took place by shouting, "One and all—one and all!" by which they meant that one and all, if any, must revolt.

* "The Life of Robert Stephenson, F.R.S., &c." By J. C. Jeaffreson, Barrister-at-Law. In two volumes. Longman & Co. 1864.

While on his way home, a remarkable meeting took place at Carthagena. There he found that eccentric genius, Trevithick, the steam-coach inventor, in a miserable state of poverty. A strange reverse of fortune had come over poor Trevithick since the time when the Peruvians received him with all the honours of a conqueror, in anticipation of the fabulous wealth which it was expected would flow to them from his engineering genius. They had absolutely shod his horse's hoofs with silver. At Carthagena, however, Trevithick was without either funds or credit; and thither he had travelled, footsore and almost starved; having suffered indescribable hardships in exploring the isthmus. To fall in with a countryman of so kindred a genius as Robert Stephenson was therefore a Godsend to poor Trevithick; and there is no doubt, on the other hand, that the original and daring views of the "Cornish giant," with respect to the capabilities of the locomotive, made a deep impression on Robert Stephenson.

On their way home, *vid* New York, the vessel they were in was wrecked, and a circumstance which then occurred very much struck the mind of Stephenson. In the scramble to get ashore, he and his companions, who were first-class passengers, were thrust back by the mate, who singled out for vacant places in the boat a knot of humble passengers behind them, headed by a petty trader of Carthagena, who was also a second-class passenger, and was well known to be minus the means which might have made it worth the mate's while to show him and his followers any preference. Stephenson naturally wondered at the circumstance, and pondered over it, till he had afterwards an opportunity of asking the captain for an explanation, when he was informed that the Carthagenian and the mate were both Freemasons, and that this was the sole reason for the preference. So struck was Stephenson with this explanation, that he became a Freemason himself ere he left New York.

Meanwhile, George Stephenson was prospering more than ever; and when Robert returned to Liverpool he there found his father, with a salary of 1,000*l.* a year, as engineer-in-chief to the Liverpool and Manchester line, the first of the great national instalments of the new order of things. George had then his hands full with Chat Moss, across which practically bottomless morass he was literally floating a viaduct. George felt himself to be hero on his trial as an engineer, and was regarded, too, by every one else as such. Just as that daring and doubtful task might prove a failure or a success, so, as he well knew, would he forthwith either be proclaimed an impudent and ignorant quack or a man of stupendous genius. He was successful; and his renown, even on this account alone, was sufficient to satisfy the ambition of any man, independent altogether of the subsequent triumph of his well-named "Rocket," on the very scene of this first triumph itself. To the success of the locomotive, however, Robert contributed in no small degree, by his exertions at the Newcastle engineering establishment. This success was based upon the multitubular boiler, an idea of Mr. Henry Booth, the Company's secretary, no less than upon the steam blast, which was generally ascribed to the Stephensons, and which had been previously used by George, in an imperfect form, in the "Puffing Billy" of a still earlier date. As Mr. Jeaffreson, however, remarks, "without the blast the multitubular boiler would have been comparatively inoperative; and apart from the multitubular boiler a strong, continuous, and regular blast was impossible."

It is rather remarkable that one of the conditions of the locomotive competition on the Manchester and Liverpool line was that ten miles an hour should be the rate of speed of the loaded train, and that the speed of the "Rocket," when first run, was so close upon that speed that 11 miles was the rate realized. When the "Rocket" went ahead, however, free of its load, "at the rate of 24 miles in the hour, shooting past the spectators with amazing velocity," it may fairly be said that the world was indeed amazed, and no wonder it thereafter ran "railway mad," as Robert Stephenson at the time expressed it in a letter to a friend. It was on this competition trial of the locomotive, as it will be recollected, that Mr. Huskisson fell the first victim to the locomotive Juggernaut. And it was the successful "Rocket" which killed him, just at the moment when he was engaged in a reconciliatory interview with the Duke of Wellington, who was on the line in one of the carriages, attached to another of the competing engines.

The manufacture of locomotives was thenceforth a rich monopoly in the hands of the Stephensons, and so indeed were the railways themselves. The effect of such success on the modest mind of Robert Stephenson was very different from what it must have been had he been a man of greater vanity and of less mental power. Instead of being anywise intoxicated, figuratively speaking, with his own position and his father's, he had fearful misgivings, expressed to a friend,—whom he had left in America, and who had only come home in 1830, when Stephenson's name had already become celebrated,—that his reputation might break under him any day like an egg-shell. It was thus in fear and trembling that Robert Stephenson established his fame.

In this year 1830 he made his first survey for the London and Birmingham line, which was formed solely by him, although his father was the appointed engineer-in-chief. There were tremendous works upon this line, especially the Kilsby tunnel, which, though let by contract for 90,000*l.* cost 320,000*l.*, and the Primrose-hill tunnel, which, though let to a contractor for 120,000*l.*, cost 280,000*l.*

By this time Mr. Stephenson was a married man: he had married in 1828; and, although he never had any children, his married life, which continued till 1841, at the close of which year his wife died, was ever regarded by him as the happiest in his experience; and, although his wife had expressed a desire that he should marry again, he thenceforth lived a single life till his death in 1859.

Having thus introduced the subject of Mr. Jeaffreson's interesting book, we shall hereafter look at it from a more technical point of view.

THE FLORENCE EXHIBITION.

The twentieth annual Exhibition of the "Society for the Promotion of the Fine Arts" opened a few days after the close of that prepared by the rival society, of recent origin, which has taken the same name, but with the somewhat sentimental addition affixed to its advertisements, "in the bosom of artistic fraternity." This new Exhibition, containing altogether 234 pictures, of which fourteen are in water-colours, with not more than eleven pieces of sculpture, confirms the impression we received from the preceding as to the marked characteristics of the encouraging signs of progress in the Italian art of the present day. Especially in two walks, *genre* and landscape, are the relatively new direction and superior attainment conspicuous in the recent works of this country's schools; and strikingly contrasted are both the style and bias of her artists at present in repute with what we see manifest in the creations of other periods. The comparative sterility of Italian schools in landscape must strike all who regard their creations in past years, or confront the art-produce of this with that of other countries. *Now* it is landscape to which the Italian genius so devotes itself that works of this class fill the prominent place, and generally possess the highest claims to admiration, the noblest characteristics in the exhibitions of modern painting.

Less widely national than that which preceded it, the Florentine exhibition now open comprises, besides a preponderance of works by Tuscan artists, several contributed by natives of Venice, Verona, Milan, Bologna. In the figure-pieces we observe a distinct preference for Italian Mediæval subjects, either historic, poetical, or biographic (*i. e.*, from the lives of artists and poets); as well as (and here this preference has often led to admirable results), for the themes supplied by the great events of recent occurrence—episodes in the war of 1859, or the preceding revolutions. The sacred subjects are few, and their treatment little remarkable; the Holy Families cold and uninteresting, the Madonnas conventional; but one of this class, "Ruth gleaning in the Field of Boaz," has the merits of novelty *as* a subject, and of a pleasing truthfulness in conception, though, indeed, far surpassed by the other groups of the same artist, Fanfani, who has contributed some of the very best works to this collection. We have in the class that may be called national,—the genre subjects that illustrate Italian celebrities,—"Dante Alighieri in Youth" (Trionfi),—a single figure, walking through a street of Florence, absorbed in meditation; another "Dante" (Petarlini), also solitary, reclining on a mountain side above the sea-shore; and, again, "Dante in exile taking refuge at Melazzo, with the Marquis Malaspina" (Parrini), a group far superior in expression and power to the isolated figures of the same poet. "Michelangelo in his Studio, reading his Poems to the Widowed Vittoria Colonna" (Fanfani),—a pleasing and very expressive group; the quiet earnestness of the artist and the matron dignity of the lady alike truthful; a fine mellow tone over the whole picture. By the same, "Cimabue proposing to the Father of Giotto to Undertake his Son's Education in Art,"—a beautiful subject beautifully treated; the benevolent interest of Cimabue, the joyous gratitude of the handsome boy, the prudent deliberation of the old peasant, well and naturally rendered. Also by Fanfani, "Benvenuto Cellini in his Studio;" for explaining which same the catalogue gives an episode out of that artist's autobiography, describing his rage on the discovery of the amours between a young secretary and a model-girl,—the story here told with much dramatic effect by the painter. "Eleonora d'Este meditating on the Episode of Sophronia in the 'Jerusalem Delivered'" (Barzaghi),—a picture in which one misses the indispensable attribute of poetical imagination: the execution admirable; the draperies, hangings, details, elaborated with extraordinary skill; the lady beautiful, but cold and stern in expression, without any apparent consciousness either of loving or being loved. "Ettore Fieromosca finding Ginevra dead" (Sanesi),—a scene from Azeglio's romance, in which the dim solemnity and far receding perspective of Gothic architecture attract rather than the figures. "Medora" (Trionfi),—Byron's heroine watching beside the sea-shore at sunset for her Conrad's return; the solitary figure reminding us of the *pose* of a tragedy-queen on the stage, though her grief is earnestly expressed, her countenance noble, quite "Sidonian" in type, her rich Oriental costume finely treated. As for the largest historic picture here, "The Conspiracy of the Pazzi" (Mussini),—we can find nothing to say in its praise: the passion exaggerated, the attitudes theatrical, the colouring, notwithstanding a profusion of fine dress, cold and hard in effect. Among subjects that bespeak the absorbing interest in political events and the great national cause, we have;—"Prayer of the Zouaves over the Graves of their Comrades slain at Palestro" (Morici),—a small picture, doing some justice (not, indeed, the fullest) to so pathetic a scene; "Riflemen surprising a Brigand" (Raimondi),—a Neapolitan episode, rendered with such spirit and truth that we might suppose it taken from the life; an "Episode in the War of 1859" (Trezzini),—the escape of schoolboys, one a theological student, over the walls of their college, in intent of joining the volunteers for the Italian cause;—a comic, but yet earnest scene, the actualities trivial, the meaning profound. Other subjects indicate the strongly-marked and indeed alarming tendency to hostilities against the Church; not so much regarding doctrines, but practice, that cannot escape attention in the Italy of the present day. "A Victim of the Inquisition," (Moricci),—a nun about to be tortured before the Dominican friars, her judges, by the hooded familiars of the dread tribunal;—all the physical horrors of the scene well rendered, but nothing more; nothing to redeem or elevate into a higher sphere such revolting realities. "A Nun in the Cell of Discipline" (Riccardi), is another miserable victim of ascetic rigour; the torture of the mind rather than that of the body, purely distressing to look upon, though indeed a well-finished figure.

But the landscapes are more attractive, generally speaking, than the other works here exhibited. Before such pictures as those of two masters, certainly pre-eminent, Marko and Bensa, we forget the particular claims of the artist, of style and manipulation, in the sense of awe or delight before the glories of Nature herself,—the manifestation of Deity in our beautiful world. Marko (son of a painter distinguished in the same walk) excels in the fascinating and sunny aspects of scenery, radiant mists, visionary distances, the twilight of the forest, the broad golden lustre of summer evenings. Bensa is happiest in the grand and wildly magnificent,—Alpine solitudes, desolate wintry scenes, where the ruined castle or antique village rises amidst snow-clad heights, beside frozen waters, rocky glens, or lakes embosomed among forests and hills under the solemn effects of sunset and twilight. Besides these masters, of such unquestionable eminence, we may mention others whose landscapes exhibit power and feeling.

Donnini,—sea-coasts, sunset upon mountains, romantic distances beyond pleasant foregrounds; Pianzola,—quiet luminous scenes, lovely effects of light and shade on woods and waters; Corvini and Maioli, both excelling in forest scenery; the former also in the characteristic landscape of the Roman Campagna; Senno,—admirable for the finish of detail, the botanic study of nature, and the light of a feeling that glorifies all it touches; Calvi and Silei, both happy in scenes where a delicious repose is the leading expression; Bertelli, whose power is well displayed in a sunset scene, from the level region of Bologna, striking and truthful; Steffani, who exhibits "The Island of the Cyclops," from the Sicilian coast, a small but very impressive and finely worked up picture. Other genre subjects treated with superior abilities, are,—"The Expectant" (Giuliano),—a poor girl looking out of a cottage-window across the sea; the "Hour of the Meal" (Castaldi),—a girl feeding poultry on the stairs of a cottage-interior; and two that might well be placed together as pendants, "The Family of the Mountebank visiting their imprisoned Father" (Sanesi), and another "Family of Mountebanks" (Malatesta), where we see a daughter dying in a garret, the desponding father who counts his paltry gain, and the other children just returned from performance, still wearing the tinsel finery that enhances the effects of sorrowful realities,—both these last conceived with much feeling; and while we must give the preference to Malatesta's picture for rich and mellowed colouring, both speaking to us with true pathos, conveying lessons fraught with morality. Rapisardi, one of the ablest living masters of Italy, has contributed only a single head, a beautiful female in white drapery, the execution, indeed, worthy of its artist's repute. Among the few sculptors we have only to notice the "Genius of Glory," by Torelli; and the "Genius of Progress," by Ricci, figures of winged boys with attributes and symbols, both distinguished by grace and elasticity, the former the more ideally beautiful, the latter the more spirited and vigorous. In the catalogue are marked prices to each painting and sculpture; and we are surprised to see how low the average; 1,500 francs being the maximum in the former class.

ARCHITECTURAL REVERIES.*

THE WINDOW.

We have seen the window feature steadily advancing in importance, and marking each epoch with its reflex, more or less striking of the spirit of the time. It was, however, in the Christian churches from the tenth to the fifteenth century, in our grand Mediæval cathedrals, that the "window," as a truly decorative and all-important architectural feature, most grandly developed itself. In the earliest days of Christianity, the rites of the new religion had been performed not only in secrecy, but in darkness, in the subterranean recesses of the Roman catacombs. But when its influence had become all-powerful, these conditions were destined to be strikingly reversed in the glorious edifices that the genius of Christian architects eventually reared as the temples of their religion. A Pagan writer, Longinus, in treating of sublimity of style in literary composition (though he had a vast range of classical masterpieces at his command), cites as an example of the truly sublime expression of illimitable power, a passage from the Jewish Scriptures,—"God said, Let there be light: and there was light." It would almost seem as though those Christian architects had seized upon the same passage as their motto when, to admit a vast body of light into their vaulted naves and aisles, they proceeded to construct those broad openings in their temple walls, which were eventually destined to become the chief glory and ornament of those wonderful structures. Unlike the castle, in which the external windows were deep and narrow,—as through them might constantly be dreaded the visitation of a cloud of arrows, or dangerous masses of stone thrown upwards from the catapult,—the Christian temple could widen its window openings without fear. The influence exercised by the Church was at that period nearly omnipotent over all classes. Churches were truly sacred buildings, even the vicinity of which was a sanctuary, the bounds of which could not be forcibly passed, even in pursuit of a criminal who took shelter within the ecclesiastical precincts. There was no necessity, therefore, to make security a consideration in the design and proportion of church windows. Consequently, in order to throw a sufficiency of light within the lofty vaultings of a vast covered area, these features soon began to assume such proportions as rendered supporting mullions necessary; and these, branching eventually at the top, so as to meet the great pressure of superincumbent wall above the wide opening, gradually grew into that exquisite window tracery which forms one of the crowning beauties of the marvellous details of Gothic architecture. The art of staining and painting on glass having developed itself about the same time, these windows were gradually converted into fields for the pictorial illustration of the great story of Christianity; and the churches thus became, as it were, spacious picture galleries, the paintings of which were lighted as no paintings had ever been lighted before, for the light passed through the pictures themselves to the eye of the spectator, giving them a vivid brilliancy such as no pictorial representations had ever been endowed with at any former period, and producing a most striking effect, which, in a decorative point of view, had certainly never been equalled. Even classical art had never achieved such decorative splendour, not even in the highest period of their temple architecture, when a Phidias wrought, in gold and ivory, the celebrated Chryselephantine statuary of the Parthenon and other Attic temples. The effect produced by the translucent pictures of the painted windows was, indeed, most brilliantly rich; and at the same time most appropriate. The light streaming through them imparted an almost supernatural effect, as of pictures of coloured æther; and with these advantages neither the defective drawing of the period, nor the necessity of surrounding every feature of a different colour with the broad line-joints of lead-work, materially injured the grandeur and imposing richness of those vast pictorial compositions which at once both decorated and lighted the great cathedrals of the thirteenth, fourteenth, and fifteenth centuries. The great painted window was, in fact, the most striking triumph of Mediæval art; and it was its great success which led to the continually increasing size of the windows as a field for this kind of church decoration, which proved itself so much more brilliant than any profusion of painting or gilding could possibly be on the opaque walls. Hence arose the extreme development of another striking feature in the Gothic architecture—the buttress,—the increased strength of which was rendered necessary by the abstraction of such large portions of the walls as window space; and, with the increased size and importance of this feature, arose the necessity for its decoration, during which process, with its canopied niches and fretted pinnacles, it became one of the leading features in the external architecture of our Gothic cathedrals.

With the increased decoration of the windows in ecclesiastical buildings, those of private dwellings proportionately increased in richness and appropriateness of ornament, and in general delicacy of architectural treatment. In great cities, indeed, window decoration developed itself in an exuberance of artistic device that often renders each window quite an artistic study in itself. Tracery was not resorted to so profusely as in church windows, where it was a necessary support in such wide openings; but its beauty was so strongly felt that architects could scarcely be expected to abandon it altogether in their domestic architecture. We therefore find it introduced in the upper parts of windows where it would not obstruct the look-out. The amount of this tracery in the windows of domestic architecture greatly differed in different countries, being most profuse in Venice, and in parts of Spain, and perhaps least so in Germany and Flanders, where, on the other hand, the Church Gothic found its greatest degree of exuberance. If, however, in the windows of the household façade the feature of tracery was but sparingly used by Gothic architects, they found a vent for their skill in this class of decoration in the traceried framework with which they often surrounded their dormer windows, some of the work of which is more rich and delicate than any to be found in church architecture; among other examples, those of the Hôtel des Mathurins at Paris, and of the Palais de Justice at Rouen, may be cited as extremely beautiful. And while tracery was thus made available for the gabled top and its surroundings in the dormer window, the decoration of those of the façade by means of the enrichments of the architrave, and the introduction of a surmounting label, decorated with appropriate ornament, in allusion to the profession or trade of the owner of the house, led to a distinct class of ornament in domestic windows which had not developed itself in those of the churches. Even the painted glass was not entirely neglected by the Gothic architect of domestic architecture; but the windows of ordinary houses had to be considered as things of *use*, as well as decoration. They had to be seen through, as well as to admit light; and yet a means was found to introduce it, without inconvenience, by the adaptive skill of those true artists; and in the upper part of the window, far above the eye-line, painted shields of arms and other brilliantly-coloured ornaments were introduced, adding greatly to the richness of the interior decoration, without impeding the view from the window, or materially decreasing the supply of light.

The richness and delicacy of window ornamentation which arose in the next great architectural epoch (that of the revival) was of extraordinary beauty and almost endless variety, so much so, that to dwell fitly upon its marvellous details would be impossible in this essay; but those of Heidelburg, those of the châteaux of Francis I. and Henri II. of France, and many most exquisite and well-known examples in Germany, Spain, and Italy, should be carefully studied by all who would fully understand and appreciate the history of window architecture.

Towards the close of the seventeenth and during the whole of the eighteenth century, the treatment of this architectural feature has but an inferior story to tell; and yet art was not then in a rapid decadence, as has been till recently thought and stated. It had but assumed a new phase, and succumbed, as it were, to a new influence. It was less profuse of striking ornament, less demonstrative, but in many respects more delicate and refined, especially in the last half of the oft-decried eighteenth century; and had not the great revolution—the Neapoleonic era with its classic mania—and the subsequent reaction in favour of Mediævalism interrupted the onward course of the styles of art which were developing themselves in the eighteenth century, they might have rapidly led to very interesting and beautiful results, the precise character of which can never now be known.

The new power to which the direction of art had partially and gradually succumbed during the seventeenth and eighteenth centuries was that of the rapidly increasing female influence. It is in fact, to this kind of influence that the greater delicacy and refinement, and the less demonstrative and somewhat more colourless character of art in those epochs may be traced. The exclusively female qualities of mind had been in matters of art, as in many other fields of human activity, almost a dead letter before those periods; but when the intrigues of the boudoir became a positively influencing power even in matters of state; and when a female coterie could decide authoritatively on the merits, or, at all events, the temporary vogue and fashion of authorship, the productions of the sculptor, the painter, or the architect, it is not to be wondered at that every style of art should feel the influence of the newly developed *régime*. The new features of the artistic progress of this period were, in England, interrupted in their development by the Puritan revolution in the reign of Charles I.; but in France, even in the uncongenial atmosphere of the court of Louis XIII., the first scintillations of a decided change of taste began to make themselves felt, and assumed a very rapid development in the reign of his successor. It was then that the leather hangings, quaintly stamped and gilt, were stripped from the walls where they had hung for ages. It was then also that the rich tapestries of former periods began to disappear. Those heavy drapings from the looms of Arras and Mechlin, grim with sanguinary battle-scenes or with the scarcely less sanguinary proceedings of the Mediæval hunting-field, were not found to be in accordance with the sympathies of the new leadership of art, and gave way to silken hangings of delicate hues, enriched with scarcely visible embroideries. The old wall linings of oak or cedar, heavily carved in quaint and often beautiful devices, were too dark and massive in their effect for boudoir taste, and gave place to delicate panellings, painted entirely white, and relieved only with light and fanciful enrichments of slightly-raised ornaments, heightened with gilding; leaving the

* See p. 804, *ante*.

dresses of the court beauties to supply the rich colouring which had in their favour been made to disappear from the walls; while even the decorative pictures, when introduced, were of light and delicate tones, all more or less modified by the admixture of white, giving to them a kind of tender bloom, and producing somewhat the effect of a picture seen through gauze, or a girl's face through a white veil.

But while interior architecture, and especially furniture, was undergoing the boudoir influence of the eighteenth century, window architecture suddenly ceased to make any decorative progress whatever. Improvements in glass-making furnished larger panes, and the leaden lattice, with its variety of patterns, gave place to a plain wooden framework with its monotonous and never-varying square panes.

As architectural genius was withdrawn more and more from the monumental to the domestic in the course of institutional changes, internal comfort became, as a rule, a greater desideratum in buildings than external effect. And though, in Paris, in the course of the eighteenth century, some elegant façades arose, in which even the neglected window feature was coquettishly adorned with surrounding mouldings, made graceful with chisellings of light and fanciful character; yet the monotonous square panes had firmly established themselves as a given element in window design, and all variety in the glazed portion of this important architectural feature came to a stand, from which, even at the present time, it has not emerged.

Whether this stationary phase of window design be absolutely necessary, as arising out of the nature of the materials used and the object to be attained in the construction of a modern window, is a matter worth examining. The first question that presents itself in the inquiry is, whether wood be really the best material for the framework of the glazed portion of house-windows of a superior class, and whether strong and rudimental objections may not exist to the present system of glazing. As regards objections to this system, it may be urged that, as glass is a very brittle substance, and liable to frequent accidents, it seems a clumsy process to stick the panes in permanently with a substance that hardens in such a way that, when a new pane has to be introduced in place of a broken one, the hammer and chisel have to go to work to extract the broken glass by main force, permanently disfiguring the neatness of the framework, and rendering fresh paint necessary to cover the unsightly patching; while as the fresh paint can never be made to match the old, the whole window ought to be repainted: and even then, if the paint of the other windows of the front be rather old, the only way to make a "good job" would be to repaint the whole of them,—and all this in consequence of an accident to a single pane of glass. Now, if instead of this clumsy and primitive method of glazing, one were adopted in which a fresh pane might be put in with the same ease and neatness as putting a new glass to a watch-face, all this clumsy puttering might be avoided. And this might be easily effected at a very small increase of expense, even with the present wooden frame. But, first, let us see whether metal framing would not be in every respect superior to wooden ones. The old objection to metal, on account of its liability to expansion by heat, is not a valid one, as that quality of metal might easily be provided against. Taking it for granted, therefore, that windows might be cast in metal, either in iron, zinc, or in some mixed metal; the first advantage gained would be, that instead of the eternal square panes (any deviation from which would be very expensive in wood work), we should be able to produce elegant varieties of tracery at the same cost as the plainest rectangular pattern, after the mould had once been prepared. Then comes the subject of glazing, in such a way as that any piece of glass might be taken out and replaced as easily as the process of unlocking the lid of a box and locking it again. The plan proposed is this:—the rebate of each compartment should have a groove, into which india-rubber tubing should be fixed, of a flattened form suitable for the purpose; upon this tubing the edges of the glass would lie; and to secure the pane in its position, a light metal frame of the width of the rebate, and also lined with india-rubber tubing, should be secured to the rebate with two or more screws, thus fixing the glass: and at the same time, as the india-rubber would only offer an elastic resistance between the glass and the metal, the contraction or expansion of the frame might take place without cracking the glass; while the glass could be taken out at any time and other glass put in its place as easily as the renewal of a watch-glass, as has been said above. This process may appear complicated in description, but is in reality exceedingly simple; and when a pattern-frame is cast, with its glass-securing framelets to match, the matter of glazing, even in the first instance, would be absolutely less costly than the clumsy puttying system, while in all cases of renewal it would only be the cost of the glass, instead of, on the old system, a heavy charge for labour (half a day), which expensive labour destroys the beauty of the wooden window-frame, makes much needless dirt, much unpleasant noise, and keeps a family out of a room in daily use to the great incommoding of all the family affairs, while the clumsy piece of pottering is being glazierly and leisurely, and most noisily, accomplished.

The greatest advantage gained, however, would be to art, in the new impetus that would be at once given to design in the various new forms which our window framework would necessarily assume; giving to our domestic architecture an epochal stamp such as all former periods have enjoyed, while our own, in all its most important architectural efforts, has hitherto been one of sheer imitation, with the almost solitary exception of railway work, where entirely new conditions have actually compelled the adoption of new treatment, which is destined to result in very remarkable and very beautiful changes, though at present in a very embryonic state, from which, however, it cannot fail to emerge in due time.

Supposing the use of metal window-frames, of the kind suggested, to be generally adopted, the question arises, what kind of tracery would be desirable, and to what part of the window ought it to be confined? Taking a drawing-room window, opening to the ground, for a first experiment, it will be seen with but slight consideration that the portions of the window-space below and above the eye-line at once suggest themselves as fitting fields for ornament, without obstructing the view; say, to the height of 18 in. at the bottom of the window, and above the height of 6 ft. from the floor at the top, which spaces might be enriched, if not filled, by well-designed tracery. This open tracery might be filled with coloured glass, in graceful design, and well contrasted colours,—sober, or rich, according to the style of the apartment, its fittings, and furniture. The want of colour of this kind has been evidently felt by our modern builders, and borderings—mere linear borderings—of coloured glass, more or less ugly and vulgar, have been frequently introduced; but this has generally been the case only when it has been thought advisable to exclude an objectionable look-out from staircases or back-rooms. It is not, however, in the humble position of a screen that coloured glass is here recommended, but as a conspicuous element of beauty in the design of a window; in which, the forms of the compartments produced by the play of the tracery should be a more important feature than the coloured glass, not only from the exterior, like the stone tracery of church windows, but also from the interior, where church window tracery, on the contrary, sinks into a secondary position in presence of the striking effect of the transparent picture of which it forms the frame. This should not be the case in a drawing-room window, in which a great portion of the central space is necessarily clear glass, surrounding which the traceried framework should conspicuously exhibit its play of lines, to which the coloured glass in the interstices should only perform a subdued accompaniment. The central space of clear glass might be a long oval, in which case, instead of the opening being up the centre, the entire oval might form of itself the opening portion, and the surrounding tracery the frame to which it would be fixed. With such an opening there would be less room for tracery below it than if the window opened down the centre in the usual way, as the bottom of the opening should not be higher than could be conveniently stepped over into a balcony or garden.

Windows constructed and ornamented in the manner described would form very decorative and really novel features in an apartment; and would at the same time tend to the development of new external effects. It has been suggested, as a starting point, to make the clear portion of the window of some new shape, while still leaving the entire framework of the window of the orthodox square form. But that is not necessary; for, not to mention the glorious Catherine-wheel windows of our cathedrals, it is well known that in Chinese architecture,—a by no means contemptible school of art,—that windows of entirely oval or circular form are made to produce most pleasing effects in ordinary domestic architecture, especially where they frame, as it were, a pretty view of lawn or flower-garden, as seen from a room or passage; but even in the external design of the building they produce a novel play of lines that might be made much of by skilful and artistic management; for there is no real æsthetic reason why the basal line of a window should be always a horizontal one. Much more than has been here hinted at remains to be done in window design; it is a fertile field for architectural innovation of the safest kind, in which, if carried on with a true sentiment for art, one might in our reverie imagine many beautiful novelties evolving themselves, if one could but wait to watch them; but this dream about windows has already reached its utmost limits.

LIME ABROAD AND AT HOME.

A VERY remarkable difference in the practice of English and Italian builders in the preparation of lime, is worthy of the attention of the practical workman, as well as of the architect and of the engineer. The specifications of English contracts are directed to the object of insuring that none but perfectly fresh-slaked lime shall be made use of; and it is frequently directed that lime which has been slaked and not mixed or used in the works in the course of the day, shall be removed from the ground, so that not more than twelve hours may elapse between the first damping of the lime and its being placed in position in the building. And in works where the mortar is required to act not only as a bed, but with tenacity that shall resist displacement, as in arches, it is usual to pay strict attention to this requisite.

In Italy, on the other hand (speaking now of Southern Italy), the lime used for building is treated in precisely the opposite manner. The first thing done when a building is to be put in hand, is to slake the lime. Pits are sunk, usually lined with masonry, and a large quantity of lime is thrown into these pits, and kept under water until it is required for use. Three months is held to be the least time proper for this preparation, but as many years are considered to form a better period. The lime is found in these pits in the state of thick cream, of puddle, or even of newly-dug London clay; but it is held to be better to keep the surface of the store constantly under water. It is then fit for use at any moment, either for mixture with sand or with "lapilli," or for use neat.

It may occur to the practical man that so great a difference in the treatment of so essential a portion of the material of the builder must arise from some difference either in the nature of the lime used, or in the effect of climate upon the buildings; and that the mere circumstance of geographical distance is not sufficient to account for so diametrically opposite a practice being adopted by the educated architects of the two countries.

In reply, it may be observed that distance alone has in other instances operated as a bar to the adoption of the most important improvements in engineering practice. The generation is now fast passing away that can remember the introduction into England of that improved system of road-making now universal in the country, and known by the name of its inventor, Macadam. The father of the late Sir James Macadam did not derive his system from acquaintance with the breccia roads of Italy, but from his own observation and reflection in the first instance, and from the experience which he then gained as a country magistrate. The attention of Government was called to the system by the simple fact, that over a few miles of road near Bristol, which had been made according to what was then called the "hobby" of Mr. Macadam, the mails travelled as fast in winter as in summer. In the new arrangement of the time for the winter running of the Bristol mail, the eye of the Post-master General was caught by the fact that no extra time was allowed for this bit of the road; and on being informed, on inquiry as to the cause, that it was not requisite, he made no remark, but ordered his carriage and went to the spot to ascertain the cause. From that visit resulted the present system of English road-making.

And yet at the time when the surface of the

road from London to Edinburgh was half pitched with coarse boulders, the breccia and gravel roads of Italy were as smooth as at the present day. It is not by anything in the nature of the roadway metalling that the traveller can tell whether he is on the road from Chester to Holyhead, or from Naples to Brindisi, and if the latter great road was not as carefully metalled in the time of Horace as it is at the present day, and if the Appian Way from Puteoli to Rome was *paved* more carefully than the turnpike road from Sheffield to Leeds some thirty years since; at all events, the Italian roads of broken stone are far earlier than the date of the introduction of Macadam's improvements.

It does not appear that the difference of treatment in question is due to any difference in the character of the limestones. The stone that is burnt in the neighbourhood of Naples is the Scala limestone of the Apennines. Geologically it is probably the equivalent of the chalk, and lithologically it may be considered to rank between the oolite of Gloucestershire and the Calp limestone of Pembrokeshire. It is burnt in kilns with wood faggots, and it behaves, on coming in contact with water, precisely like the lime with which we are familiar.

It is true that there is a very great difference in climate. The Italian winter is mild, and the hot summers sometimes last for six months without a single shower. But, on the other hand, frosts, though rare, do occur repeatedly in the course of the winter; and it is not the duration or the intensity of frost, but the alternation of frost and thaw that chiefly tries masonry. And again the volcanic tufa, which is the chief building material over a large district of the Campagna, when it is taken from the quarry, and very ready to imbibe damp after it has been dried. The rain, too, when it does come, comes in torrents; and in the narrow lanes of the country, and even in the narrow "vicoli" of the towns, masonry that is never exposed to the sun is damp throughout the winter; so that the action of frost, when it occurs, takes place under circumstances the most trying to the mortar.

It can, hardly, therefore, be thought that the practice of the Italian architects is one that has been found unsuited to England, or that any such difference in the nature of the lime, or in the action of the climate, can exist, as to render that method unsuitable to this country. It is a practical question, and as such well deserves to be put to the test of practice.

Nor can it be denied that, however superior the English carpenter or smith may be to his Italian fellow-craftsman, we may learn much from the Italian mason. Masonry is native to Italy, and there to a great extent displaces woodwork. The shores of a tottering house, or the centres of a bridge, are built by the Italian mason as readily as they are fixed in timber by ourselves, and as clearly and readily removed; and the durability of Italian masonry is well known. From the frequent recurrence of earthquakes there are hardly any large buildings to be found in Southern Italy without conspicuous cracks; but each such crack is a witness of a shock that would have laid an English town in ruins. The great extra thickness of the walls is, no doubt, the main reason that the damage caused by earthquakes is not greater; but the strain is very great on all buildings, and any inferiority in the cement would not fail to be detected; and then the old Roman work existing in Roman monuments, or from time to time brought to light in excavations, is a witness to the imperishable character of the Italian mortar.

For these reasons it may be thought that the introduction of the Italian method is at least worth a trial. It would most likely pay an architect or a builder in large practice to build an experimental piece of masonry, or even a lodge or a cottage, with long-slaked lime; at all events, the subject is one which demands such attention as does not appear yet to have been given to it in this country.

F. R. C.

PROPOSED SALE OF YORK CASTLE.—Amongst the various Parliamentary notices for the ensuing session, there is one for a Bill authorising the sale of York Castle and the Judges' lodgings. The acting justices for the West Riding are the promoters of the Bill, and the real object which they have in view is to relieve the West Riding from any further liability on account of York Castle. The *York Herald* seems to think that the Government will agree to take York Castle into their own hands, but not to sell it.

PROFESSOR W. KING ON THE ANTIQUITIES OF IRELAND.

BEING lately in Dublin, assisting in the Queen's University Examinations, I availed myself of a spare day to visit the vast mound-covered temples of the Boyne, as well as the Pagan and Christian ruins of Monasterboice, in Louth, and Donoughmore, in Meath. I was accompanied in a part of the excursion by a gentleman, a builder, from Glasgow, whose name I inadvertently neglected to note down; but as his practical knowledge of masonry was of the greatest service to me while investigating the round tower and other ruins of Monasterboice, I feel myself called on to acknowledge the assistance which I derived from him.

I may remark, in the first place, that we observed indisputable evidence that the *doorway* of the Monasterboice tower *is an insertion*;—in other words, that the doorway had been built *to the wall* inclosing it, and not the wall built to the doorway, as would have been the case had the latter been an original structure. Among other evidences, I found that an angle of one of the stones of the doorway, on its inner side, and near the bottom, had been deeply cut out, so as to fit over, or overlap, a large projecting stone belonging to the adjoining portion of the wall. The doorway is of sandstone, and the tower of hard silurian schist. But besides this difference, any one might be led to suspect, from the imperfect way the stones of both parts are respectively bonded together, that the doorway is an after-erection: even the figure of it in Dr. Petrie's "Ecclesiastical Architecture" only needed some positive evidence to convert a suspicion, which simultaneously occurred to the gentleman who was with me and myself, into a certainty; and this was afforded by the overlap above noticed, for no sooner had I pointed it out to my fellow-traveller than he declared that a more conclusive proof as to the entire doorway being a *patch* could not be expected.

Having long leaned to the opinion that the round towers of Ireland are of Pagan origin, contrary to the view so ably and fairly maintained by Dr. Petrie (a view which I am sorry to say has become of late intolerant among some of its advocates*), I was induced to extend my excursion to Donoughmore, near Navin, with the object of examining its round tower; the door entrance of which, it is well known, is distinguished from all others in Ireland by having on its arch a rude *alto-rilievo* figure of the Crucifixion. With this exception, the Donoughmore doorway is identical in style, ornamentation, and material, with that of the Monasterboice tower. Now, I hold that, as the doorway of the latter building is an insertion, the Donoughmore one must also have been inserted; and it necessarily follows that the figure of the crucifix, which is an integral portion of the doorway, must equally be considered in the same light. It is doubtful that the Donoughmore tower affords the same positive evidence which I observed at Monasterboice; as not only the *doorway*, but (unlike what is observed in the edifice of the latter place) the *wall*, for a *yard or so on each side of it*, consists of freestone, while the tower itself is of limestone. In Dr. Petrie's figure of this doorway, given in p. 407 of the "Prize Essay" already referred to, *all the parts* represented are of sandstone. The limestone does not come in for some distance on each side of the entrance. It comes in, however, immediately above the large block on which the upper half of the Crucifixion is sculptured. But in this place the limestone blocks are so broken and *imperfectly joined to the subjacent sandstone blocks*, as, if not amounting to a positive demonstration, to be at least *strongly suggestive of a patch*. With this exception, I admit that the insertion has been cleverly managed.

It was fortunate that I went to Monasterboice before going to Donoughmore; otherwise, I admit, I should not have expressed myself so strongly on this point. I fully appreciate the evidence which appears to have led Dr. Petrie and others to conclude that the round tower of Donoughmore and its entrance are contemporaneous; but the important fact stated in connexion with the Monasterboice tower completely destroys, in my mind, the assumed contemporaneity. The Donoughmore doorway and its immediate surroundings may be of a Mediæval age; but I contend that the edifice to which it belongs must be regarded as considerably older.* Some other round towers (Timahoe, Kildare, Brechin in Scotland, &c.), I strongly suspect, will have to be placed in the same category.

At present I am under the necessity of reserving all the evidences which have fallen under my notice bearing on this particular point, as well as on the pre-Christian antiquity of Irish round towers in general; but I purpose returning to these subjects on some other occasion. My object just now is to make a few remarks on an extremely interesting question, lately mooted in your valuable columns, connected with the mysterious megalithic monuments of New Grange and Dowth, near the Boyne, within a few miles of Monasterboice, and an equally short distance from Drogheda. In answer to the Rev. Mr. Graves's statement, that "Irish archæologists are well aware that there is not a vestige of an inscription (though there are many rude carvings) on any stone, now visible, in or about the mound of New Grange,"† you observe, as one reason why they have not been noticed of late, that "it may be that during the last fifty to a hundred years, or since the passage was opened and the incisions exposed to the influence of the air, they may have all scaled off."‡

Having carefully examined the incised figures occurring on the massive blocks and flags (formed of a light-coloured, fine-grained sandstone) in both caves, I find materially different from those represented by Sir William Wilde, in his "Boyne and the Blackwater;" and I doubt very much that any such figures have become effaced by atmospheric or other action since the reputed discovery of the caves. The figures are so fresh that it can readily be seen they have been produced by a small pointed instrument. But what is the strongest proof in my mind as to the surface of the stones having undergone little or no scaling off, is that some of the stones are marked with ice-scratches and furrows, such as must have been on them before they were removed from their natural site. The stones are what geologists call glaciated blocks.

Taking various circumstances into consideration, it appears to me that the "traces of letters" and "symbolic characters," observed by Vallancey and others, do still exist; but it must also be admitted that they are nothing more than the "rude carvings," so called by Mr. Graves,—the incised spirals, circles, zigzags, lozenges, runiforms, and other figures, with which all who have examined the caves are familiar. It is Vallancey's interpretations, if they were intended for these incised characters, which may be justly disputed. As to their true meaning, this is a question which may be left in the hands of those able men who are now studying their analogues at Lochgilphead (where there are acres of rock-surfaces covered with them), also in Northumberland, Kerry, and other places. Among these writers I am much gratified to see the name of my old friend and fellow-labourer in geology, Mr. Tate, of Alnwick.

You will, Mr. Editor, I feel assured, excuse these last remarks, referring as they do to structures so singularly resembling in their shape the cruciform cave temples of Salsette, near Bombay, and others in Egypt. The latter, however, have a covering of solid rock; whereas those of the Boyne are each covered with a vast mound of artificially piled-up gravel (eskar drift). In addition to its megalithic subterranean chamber, the New Grange mound has a flattened summit, circumscribed by a large rath-like circle, with a small one in the centre; while there still remain at its base several large monoliths, evidently part of a circle which formerly surrounded the entire mound. The entrance, truly cyclopean in style, has a threshold formed of one or two enormous blocks (I forget the number, but if two, they are placed end to end), lying lengthways, of hard silurian schist, the front of which is crowded with large mysterious incised spirals, looking like mere ornamentation, and almost as sharply defined as on the day they were cut.

Instead of being sepulchral, as some imagine, I cannot but regard the Boyne edifices, as

---

* A few months ago, the editor of the *Gentleman's Magazine* refused to insert a paper, by Mr. Brash (one of the ablest opponents of Dr. Petrie's view), in opposition to the opinion advocated on this subject in some able articles on the ancient architecture of Ireland, now in course of publication in its pages.—W. K.

* The Donoughmore tower, in addition to some important repairs which it has undergone, has been furnished with a new cap: besides, from the absence of the four top windows, usual to such structures, I strongly suspect that this tower is now considerably short of its original height.

† See *Builder*, Oct. 15, p. 752. ‡ *Ibid.*

having been erected for religious purposes,—as caves, wherein Druid priests performed their mystic rites. The huge stone basins (one of granite, one of sandstone, and another, broken, apparently of schist) in the three recesses (devoted to tri-theolatry ?), terminating the long entrance-passage in the New Grange mound, may have been used for sacrificial or baptismal purposes (Tertullian). The incised branch-like figure* in the western recess reminds me of the lines by the Druidical bard, Taliesin,—

> "I am acquainted with every sprig
> In the cave of the arch-diviner!"

Ireland is classical ground for archaic edifices: her cromlechs, pillar-stones, round towers, mound-covered temples, raths, stone fortresses, primitive pelasgic-styled Christian oratories, and Mediæval crosses, are unsurpassed in number, or interest, by remains in any country of Europe. As monuments of her ancient renown, her sons may be justly proud of them. Let us hope that the growing intelligence of the age will, ere long, rescue them from their present unmerited neglect; and from, as I believe, a false and derogating chronology.† WILLIAM KING.

Belmont, near Galway.

FROM PARIS.

IN most of the new quarters in Paris the habitations replacing those demolished are first-class residences, and only approachable by persons in comfortable circumstances. An exception, however, occurs near the Boulevart Avenue Daumesnil (formerly the Avenue Vincennes), where the houses are being constructed after a less sumptuous model, and are consequently within reach of the working classes.

The Avenue Daumesnil, stretching through the twelfth arrondissement, passes through the *rond-point* of Reuilly, descends towards the Porte de Picpus, opened on the new promenade lately added to the Bois de Vincennes. Here, also, modest dwellings are being erected suitable to the working classes. There being two stations close by, of the Chemin de Fer de Ceinture, the artisans inhabiting this quarter will have easy access to their *chantiers*.

The works of the new reservoir at Menilmontant have been very much advanced this year. This immense basin, to be supplied from the Dhuis, is to be divided into two stages. The upper basin, of semicircular form, will have its overflow level 354 ft. 4 in. above the level of the sea, and is to contain spring water. Its capacity will amount to 130,802 cubic yards, or 22,009,668 gallons: the depth of the water is to be 16 ft. 5 in., and the reservoir arched over by spans of 18 ft. openings, composed of a double row of bricks laid on the flat, and grouted with mortar and hydraulic cement. At the key of the arch it will be as slender as possible, and a covering of earth and a grassplot will keep the interior always cool. The second reservoir, the highest level of which will be 26 ft. 3 in. lower than the upper one, is to receive the water of the Marne, raised by engines which are now being mounted at St. Maur. These are to be turbines of about 400-horse power. Two conduits of cast-iron, about 9,296 yards long each, will convey the water from the St. Maur works to the Menilmontant reservoirs. These tubes start from Joinville le Pont, cross the Bois de Vincennes, and continue along the Avenue de Vincennes and the *route militaire* till they reach the grand reservoir.

The Menilmontant basins are to send, by means of an engine of 15 horse power, a supply of water to other reservoirs now in course of construction at Belleville. These are on the same plan as those first described, but of smaller dimensions.

According to the new project of the fresh water supply to Paris, there are to be furnished 44,019,335 gallons of water every 24 hours.

The supply canal of the Dhuis, now in course of construction, alone will yield and deliver at the maximum level of 354 ft. 4 in. above the sea, 8,803,867 gallons per 24 hours.

The total length of this supply canal is 83 miles 537 yards, and is for the most part in cutting. The section presented by the portion in masonry is egg-shaped, 5 ft. 9 in. in height under the key, and 4 ft. 7 in. greatest width. The pipes through which the water is forced are 3 ft. $3\frac{3}{8}$ in. internal diameter.

The ancient church of St. Mary has been almost thoroughly restored. The nave, transept, choir, side aisles, and chapels have been all renovated and cleaned, so that this church may now take a third rank among the finest in Paris. Built in the fifteenth century, on the site of the ancient chapel of St. Peter, known since the seventh century, it contains numerous fine paintings by Coypel, Carl Van Loo, &c., and some admirable specimens of painted glass by Vinaigrier and de Parray. The choir is in the style of Louis XIV., and was decorated by the brothers Slodtz. It was the Curé de Saint Merry, J. Thomas, who wrote to the Pope John XXII. the curious letter addressed after the execution of Jourdain de l'Isle, the Pope's nephew, convicted of felony. The letter ran thus:—"Very sacred father,—As soon as I was informed that the husband of your niece was about to be executed, I assembled our chapter and represented that we ought to profit by this opportunity of proving to you our very respectful attachment and very profound veneration. No sooner was he hanged than we proceeded in great illuminated procession to take him from the gallows, and we bore him to our church, where he was interred honourably and gratis [*sic*]. Sacred father, we continue to demand very humbly your holy and paternal benediction."*

ÆSTHETICS IN ART.†

ÆSTHETICS, in relation to [illegible] of art which are comprehended by the generic term architecture, may be described as the effect of a work of art on the mind of its beholder. The nature of this effect must be variable, but the æsthetical condition obtains whenever it is produced through the medium of the observer's perception. There are three elements concerned in the production of the æsthetical condition. 1st. The art embodied in its work, and possessing a power to affect the mind of its beholder; 2nd. The mind of the beholder endowed with a faculty of perception, in greater or less degree of development; and, 3rd, the sympathy of the power in the art with the faculty in the man, or, in other words, that adaptation of the one to the other which renders an intercommunication possible. At first sight this division of the subject may appear more imaginative then essential; but, if I mistake not, further consideration will change the judgment. It cannot be doubted that there have been epochs in the history of art when the power embodied in certain of its works has been both unfelt and unrecognised by the mass of men who witnessed them. The art-sense of the time was not adequate to their appreciation. Though true chords were struck, their music sounded discordantly to ears incapable of harmony. But succeeding generations of men have inherited mind in a higher degree of development, and hence the discovery of powerfulness in works which were no less powerful when their unenlightened ancestors failed to feel their influence. And not only is the faculty of perception necessary to æsthesis, but that faculty must be subjected to a process of education before its full functions can be brought into relation with the external world. And this is true, not only in respect to the higher qualities of taste and discrimination, but to the act of visual perception itself, independent of its more subtle properties. For example, a person born blind, but afterwards receiving the power of sight, is unable to realise the pictures formed on the retina of his eye. Solidity, distance, and even form and colour, cannot be ascertained by the sense new to him, until the course of training to which it is subjected by his other senses has resulted in its mature development. But not only may the æsthetical state be rendered impossible by a defect in the perceptive faculty of the beholder; it will fail also if the work of art be imperfect,—if the significance it bears is too vague or too confused for the production of a definite impression. There must, therefore, be a sympathy or affinity between the faculty of perception and that which strives to operate upon it, and it is this sympathy which I have referred to as the third element in æsthetics. From these considerations it will be evident that the study of æsthetics (properly so called) involves, on the one hand, a close scrutiny of the progress of art from the earliest traces of its existence to the last step in its advancement, and, on the other, a methodical investigation of the growth of intellect; and the parallelism of these two progressive developments will determine the relations which have subsisted between them at different periods of their course, and the record of these relations will be the history of æsthetics. The necessities of such a task must obviously far exceed the limits of a paper, and I shall content myself on the present occasion with the suggestion of a method by which I conceive the science of æsthetics may be most readily and profitably investigated. At the threshold of our inquiry it will be important for us to form a passing estimate of the two principal methods in which art makes the appeal to our sensibilities necessary to æsthesis—the *imitative* and the *suggestive*. Their distinctive qualities will be best characterised by comparison. Suppose, first, the case of a painting designed to portray some object peculiar to civilised life—say, for example, a steam-carriage. Let the picture be simply a correct imitation of the form and colour of the object depicted. What would be the æsthetical value,—or, in other words, the effect,—of such a work of art on the mind of an uncivilized spectator, one who had never seen the original of the portraiture? It is easy to see that he must utterly fail to comprehend the nature of the representation before him. But now suppose that, instead of merely imitating his view of the steam-carriage before him, the artist contrived, by the peculiar treatment of his [illegible] to suggest [illegible] The whole effect would be changed. The man who in the former case looked on the imitative portraiture, and wondered at its strangeness, would, in the latter instance, realise the idea of motion *suggested;* and, combining the idea so realised with that which before only excited his surprise, he would obtain the knowledge of a new locomotive vehicle. Or, again, to take an example from the higher functions of art, suppose the case of a painter seeking to imply the spirituality of a supernatural being under the semblance of a human body, and it will be evident that all that is superadded to the portraiture of a man to make it awaken the idea of divinity in the mind of the beholder must be *suggestive*, or, in other words, powerful to call into action the imaginative faculties of his intellect. There could be no original to imitate, yet there would be a reality to suggest. The work of suggestion may be imperfectly performed, or the observer incapable of imagination, and the æsthetic effect consequently impaired or altogether impossible; but the task of the artist, in whatever degree it is accomplished, must necessarily be something more than mere imitation. Nor is it essential to the perfection of a suggestive work of art that the material element (or, more correctly, the imitative part) of its composition should be strictly accurate. It not unfrequently happens, as in many works of the Italian and other schools of painting, that the objects forming the material of a picture are false to every known fact of the classes from which they are taken; or, as in some Mediæval works, so conventionally treated as to become non-natural; and yet, in spite of the anomaly, a lesson powerful enough to enlighten and influence the whole mental and moral organism of the beholder may be suggested. And, in virtue of the difference which exists between a purely imitative and a suggestive work of art, the latter has the advantage of being independent of the experience of the beholder (as we have seen in the case of a portrait of a steam-carriage); whilst the former can produce no æsthetical effect, but remains unintelligible to the person who is unacquainted with its original. The inexperienced observer in the presence of a mere portraiture of unknown objects is amazed, but uninstructed. He has something to learn concerning them which a purely mistaken art is incompetent to teach him. There can be little doubt, therefore, that the higher class of art-teaching must be accomplished by a method which can do something above and beyond the mere transcription of natural objects, and if I mistake not the method that shall be found capable of such an enterprise will not only employ the materials nature has provided for the handicraft of her disciples, but search out the processes that are employed in her studio, and embody them there as the govern-

* Some have taken this branch-like figure for a rune; others, from its being pinnated, for a representation of a palm-leaf; but to me it appears more likely to be a figure of some species of a willow, or of an ash.

† Of course, the reader will understand that I here refer chiefly to the round towers, and other Pagan monuments.—W. K.

* See Sainte-Foix, Essais historiques sur Paris.

† From a paper by Mr. J. Mortimer Granville, read at the Bristol Society of Architects on the 2nd instant.

ing principles of its own practice. . . . The system, then, gentlemen, to which I propose inviting your attention this evening is founded on the hypotheses,—1st, that there exists a distinct series of elementary forms or symbols of art which have definite significances; 2nd, that these forms or symbols are so constituted that they will combine amongst themselves in definite formulæ, and in these only; and, 3rd, that the æsthetical condition will not obtain unless the property of provoking perception (which is located in the work of art itself), is adapted to the special faculty of perception in the observer. . . . . And now, gentlemen, I must take leave to remark that I believe the great necessity of art in the present day is scientific inquiry. For want of it men set about their work with little appreciation of the difficulties to be encountered, the obstacles to be overcome, and the ends to be attained by them. A general desire to please, or a devoted allegiance to some particular style, is all that represents in art those well-ordered processes and preconceived purposes which guide the experimenter in the science of chemistry. And yet art is a natural system. Nature is not only the example, but the governor, of its practice; and the laws which are embodied in her achivements are no less the constituents of a natural science than are the power and affinities she has provided for the direction of the chemist. They must both be sought in the same way, and realised as rigorously in the daily exercise of their respective philosophies. The laws which govern the designer are no less inviolable than are those which determine the practice of a Liebig or a Faraday, whether his task be analytical or synthetical research amidst the mysteries which surround him. The purpose I have had in view on the present occasion has been to claim for æsthetics the character of a natural science, and to assert for it the prerogative of governance in relation to every work of the true artist, whether architecture (properly so called), sculpture, or painting be his speciality, for the æstheticism of all are identical. The limits of time at my disposal have not, indeed, been sufficient for the statement of my theory and the exposition of its elements; but I regret this the less because, as regards the latter portion of the task at least, what I should have imperfectly attempted is already accomplished in the works on your bookshelves. The want of art-literature in the present day is not so much new information as more orderly treatment of that we have already attained, a better development of natural laws, a less conventional appeal to the customs of art-work as infallible, and a more patient and generalising research amidst the significance of all that is significant, and the powerfulness of all that is powerful, a more complete separation of the idea of portraiture from that of suggestive symbolism, and the assignment to each of its proper sphere in the art-field. The recognition of definite natural formulæ, definite principles of combination, and definite æsthetical effects, inseparably attached to the processes by which they are produced, the studious scrutiny not only of Nature's works, but her methods and mannerisms, and the embodiment of all the information we obtain in the practice of an art which shall be no mere mimicry of the myriad objects in her realm of power and loveliness, but, as it were, an extension of her own creation in the lesser but vastly important domain which has been conceded to the handicraft of her disciples;—a high, nay, even a God-like, because a God-following, task to work out a world of mysteries in the path which the Creator of all things has provided for the progressive development of the being—Man—who was created in His image. If it be a truth that the recognition of great significance and the discovery of lofty motive in an enterprise afford the strongest incentive to its accomplishment, let us admit that æsthetics in relation to art constitute a natural science, and that as such the laws which govern it are promulgated from the same oracle that gave forth the physiological principles of our own existence.

DIMENSIONS OF CHURCHES.—"Clericus" has made the mistake of adding 100 ft. to the "width of the nave" of the church of Holy Trinity, Hull. The clear width is 72 ft., and 96 ft. across the transepts, falling far short of the 110 ft. width of both nave and chancel with aisles, and 154 ft. across the transepts of St. Nicholas' Church at Great Yarmouth.—J. P. S.

ABURY AND STANTON DREW.*

THE most simple form of Celtic monuments is the Maen-hir, or Long-stone—called also Peulvan, or stone pillar. This is doubtless the earliest as it is the simplest form of monument, and was erected to commemorate a victory, or to mark a boundary, or to denote the resting-place of some person of rank. These single stones are found in all countries, and we have notices of them in Holy Writ. Many of them now may be only the remains of more extensive monuments which were destroyed when Christianity overthrew the ancient Paganism, for the decrees of Councils of the Church were directed against such like monuments. A.D. 452 the Council of Arles, A.D. 567 the Council of Toledo, threaten with excommunication any bishop who shall not use his influence to destroy all objects of idolatry, among which stones are enumerated. Chilperic in his charters enjoins the destruction of the stone monuments which cover the land, and the Anglo-Saxon laws forbid the worship of stones (Canons of Edgar, ch. 16; also Sæc. Laws of Canute, c. 5). These stones afterwards were converted in some cases to Christian purposes, and have been used as monumental stones. Many exist in this island with the names of persons of British or Romano-British extraction carved upon them, and a very remarkable monument of this kind exists near Joinville, in the department of the Meuse, on which is sculptured VIROMARVS ISTALIF, *i.e.*, Viromagus, son of Istalius, which perhaps commemorates a Gaulish chief subject to the Roman power (see Akerman's Archæological Index, p. 18). A Maen-hir stands in the parish of St. Briavel's, in Gloucestershire; and at Trelech, in Monmouthshire, are three, which are said to mark the spots where three chieftains fell in the battle with Harold, who defeated the Welsh in that county. The next monument is the Dolmen, or Trilith, which consists of two upright stones and one placed upon them. These are supposed for the most part to be the remains of ancient sepulchres, which have been covered with earth originally, but from which for various reasons the earth is now removed. There are gigantic triliths which compose one of the ovals at Stonehenge; but these are different from the ordinary trilith, which seems to have been sepulchral. Cromlechs consist of three or more upright stones, which are capped by a fourth. They are arranged as follows by Sir Gardner Wilkinson (see Rock Basins of Dartmoor, *Journal of British Archæological Association*, 1860, p. 116):—1. The cromlech proper, or three-pillared cromlech, supported on three stones. 2. The four-pillared or cist-cromlech, supported on four slabs, enclosing a square space like a cist or chest. 3. The many-pillared cromlech, with more than four slabs of piers, as Trevethy and Zennor Quoits in Cornwall. 4. The chambered cromlech, with high-walled sides composed of several upright slabs (the Dolmen of France), sometimes with several large covering stones. 5. The subterraneous chamber, like the hollow tumulus; but this is not properly a cromlech.

These cromlechs are probably all sepulchral. The covering stone is generally convex on the upper surface, or sloping at one end, whence the name of cromlech is supposed to be derived,—*crom* signifying bowed or bent, and *llech* a slab. For a particular account of cromlechs I must refer to Mr. Lukis's paper in the *Archæologia*, vol. xxxv., p. 232. The next description of megalithic monument is the stone circle. Of these there are many in our island. We have, first, single circles of stones, as at Penrith (Long Meg and her daughters), and at Arbor Lowe, in Derbyshire, which latter is a single circle, surrounded by a trench having two entrances. Three stones remain in the centre of the circle. Single stone circles are found on Dartmoor and in Cumberland, and other localities of our island. On Dartmoor they are connected with long straight avenues of stones. In other instances these avenues are winding, and pass through the stone circle, giving the appearance of a serpent passing through a circle, as at Abury, or two serpents issuing out of a circle, as at Stanton Drew. Hence they have been called Dracontia, and supposed to indicate the worship of the serpent. This subject has been dwelt upon at considerable length by the Rev. J. Bathurst Deane, in his work on serpent worship. Of Megaliths, the most magnificent in Britain is at Abury, Wilts; the most extensive that of Shap, Westmoreland. Stanton Drew is smaller. The megaliths on Dartmoor are also smaller, but more perfect. All these vary in actual figure, but agree in general analogy. Arberlow, in Derbyshire, has a mound and vallum exactly like to that at Abury. Stanton Drew is considered by Mr. B. Deane as the second dracontium in order of beauty now extant in England. He says the "plan of it is of the ophite hierogram, where two serpents emerge from the circle." Abury he regards as a single serpent, and older than Stanton Drew. On Dartmoor the remains are parallelitha, the lines are straight, and the temples in pairs. At Merivale Bridge, 4 miles from Tavistock, on the Moreton Hampstead-road, is a remarkable group, consisting of four temples, viz., two parallelitha and two circles. Of the circular temples only one remains entire, but the central obelisk of the others is still standing, and measures above 10 ft. in height. The circle is formed by eight stones, and is about 18 yards in diameter. Between this and the road are the dracontia, forming a pair of parallel avenues, running east and west, and 105 ft. apart. The average width of the avenues is 3½ ft. The stones are generally 2 ft. high, though some are much higher. The longest avenue is 1,143 ft. It has an oval in the centre, and had a circle at each end, which are now scarcely traceable. The shortest avenue is 792 ft., and terminates in a circle. The first of these Mr. B. Deane considers to be a dracontium of the same order as Stanton Drew, only the avenues are straight. There are other stone structures on Dartmoor of the same description, but not so extensive. On the brook side below Black Tor, are two avenues parallel to each other, running east and west, which may be traced for 300 ft. and 180 ft. respectively. They are 40 ft. apart, and each is terminated at the east end by a circle, 30 ft. in diameter, inclosing a cairn. The stones average the same height as those at Merivale. Similar avenues, but running north and south, occur near Gidleigh Common, of which the pillars are 3½ ft. high, and triangular. They may be traced for 432 ft. and 123 ft. respectively. Many other monuments of the same kind are scattered over the moor.

Shap, Westmoreland.—The stones are not to be compared for grandeur with those of Abury, and the appearance is less interesting than Stanton Drew, but the avenue of Shap was a work of great labour and extent. The avenue is supposed to continue in a sinuous course seven miles. Here, as in all the British structures of the same kind, there are but two rows of stones; these may now be traced at intervals for nearly two miles. They begin at about half a mile to the south of the village of Shap. This extremity of the avenue seems to have been the head of the serpent (says Mr. B. Deane). It is called a circle, but in reality is only a wedge-like area, having the angles of the base rounded off, and the base itself bounded by a slightly-curved line, its vertex opening into the parallelithon. The avenue is said to have terminated at Moor Dovey, near Banton, seven miles from Shap, but only two miles can be satisfactorily traced; there does not seem to have been a great circle as at Abury.

Carnac in Brittany.—This differs in some respects from the megalithic structures in Great Britain, but still all preserve a general analogy, sufficient, as Mr. B. Deane thinks, to point out a kindred religion. The British dracontia have only two parallel rows of stones, whereas Carnac has eleven. But the same concomitant tumuli and cromlechs decorate all. The serpentine sinuosities are the same in the structures of both countries, but that at Carnac is intersected by two curvilinear areas, neither of which can be called in strict propriety a circle. The great Celtic monument at Carnac, known as the "Stones of Carnac," is eight miles in length. (See *Archæologia*, vol. xxv., p. 202.)

Abury.—The most ancient and most magnificent of the megalithic structures in our island is Abury. This is in Wiltshire, and the village of Abury or Avebury is situate on the line of the turnpike road between London and Bath, through Devizes, but lies at some distance from it, and is four miles west from Marlborough. The first person who examined it with attention, and who has left any particular record of it, is John Aubrey. Leland only makes this scanty allusion: "Kenet risith N.N.W. at Selbirihill bottom, whereby hath been camps and sepulchres of men of war, as at Aibyri, a mile of, and in divers places of the plain." Camden does not seem to have been aware of its exist.

* From a paper by the Rev. Prebendary Scarth, on "Some of the Megalithic Remains of Great Britain, especially the large Circles of Abury, Stonehenge, and Stanton Drew," read at a meeting of the Bath Literary and Philosophical Society.

ence. Aubrey first met with it in a hunting excursion, when the chase led through Abury village, "where," says he, "I was wonderfully surprised at the sight of those vast stones, of which I had never heard before, as also at the mighty bank and graffe about it; I observed in the enclosure some segments of rude circles, made with these stones. A.D. 1663, King Charles II. visited Abury, under the guidance of Aubrey, on his way to Bath, who "shewed him that stupendous antiquity, with the view whereof, he and H.R.H. the Duke of York were very well pleased." The king commanded Aubrey to write a description of it, which is extant. He says, "I take this old ill-shaped monument to be the greatest, most considerable, and the least ruinated of any of this kind in our British isle." It is environed with an extraordinary great vallum, within which is a graffe of a depth and breadth proportionable to it. Round about the graffe are pitched on end huge stones, as big, or rather bigger, than those at Stonehenge, but rude and unhewn as they are drawn out of the earth. Within this circumvallation are remaining segments of two sacellæ, and their ruins are not unlike Ariadne's crown. This monument does so much exceed in greatness the so renowned Stonehenge, as a cathedral does a parish church, so that by its grandeur one might presume it to have been an arch-temple of the Druids. It is situate in the country of the stones called Grey Wethers, of which sort of stones both this antiquity and that of Stonehenge were built. From the south entrance runs a solemn walk of stones, pitched on end, about 7 ft. high, which goes as far as Kynet, a measured mile from Abury, and from Kynet it turns with a right angle eastward, crossing the river, and ascends up the hill to another monument of the same kind. The distance of the stones in the walk, and the breadth of it, are much about the distance of a noble walk of trees of that length, and very probably this walk was made for processions. Within the circumference or borough of this monument is now the village of Abury: the houses are built of the frustums of those huge stones, which they invade with great sledges. These mighty stones may be broken in what part of them you please, without any great trouble, by making a fire on that line of the stone where you would have it to crack, and after the stone is well heated, draw over a line of cold water, and immediately give a knock with a smith's sledge, and it will break like the collets at the glass-house. The church is built of them, and the manor-house, and another fair house not far from that." The Beckhampton avenue escaped Aubrey's notice. Dr. Stukely, A.D. 1723, gave a detailed account of the plan upon which this wonderful megalithic structure is formed. He spent much time on the spot, surveyed it thoroughly, reckoned the stones then standing, those that were prostrate, and the hollow places indicating the sites of those that had been destroyed; and this he did, not only with the vallum, but in the avenues and the sanctuary (as it is called), on Kennett Hill. "When I frequented this place," he said, "which I did for some years together, to take an exact account of it, staying a fortnight at a time, I found out the entire work by degrees. The second time I was here an avenue was a new amusement, the third year another; so that at length I discovered the mystery of it which was, that the whole figure represented a snake transmitted through a circle. This is an hieroglyphic or symbol of highest note and antiquity." (See Stukely, as quoted by W. Long, Esq., Wilts Mag., Jan., 1858, vol. iv., p. 323, Paper on Abury.) Within the large outer circle were two smaller ones, not concentric, each, according to Stukely, composed of thirty stones. Of the southern of these circles two stones only remain erect, and three prostrate. Three recumbent stones (says Mr. Long) marked in early impressions of Sir R. C. Hoare's survey of 1812, were removed between that year and 1819. Of the northern circle three stones are now erect and one prostrate: one which was standing when Sir R. C. Hoare described Abury has since been broken up. Within each of these circles Stukely thinks there was a concentric circle of twelve stones. Within the northern of these circles, in its centre, were three very large stones, which formed the adytum, or cove of the temple, as Stukely termed it. The altar-stone is supposed to have been placed in the centre of these three, but to have been removed, as the place for it seemed to have been filled with rubbish (see Mr. Long's Paper, p. 325). In the centre of the southern inner circle of twelve stones, was one stone, described by Stukely as of circular form at the base, of vast bulk, 21 ft. long by 8 ft. 9 in. dia meter, and when standing, higher than the rest. Stukely thought it was the kibla, ambre, or central obelisk, of the temple. Nothing now remains of it.

Stanton Drew is one of the most interesting megalithic monuments of this island, and probably one of the most ancient. It is situate in the county of Somerset, about 7 miles south of Bristol, in the valley of the Chew, and near that river, not far from the range of hills called Dundry, and is overlooked by the portion of that hill called Maesknoll, on which the camp is situate. It lies to the south of the line of the Wansdyke, which can be traced through Wilts to Hampton Down, south of Bath, and on to Stantonbury camp, and by Compton Dando to Maesknoll. It was, therefore, situate within the line of the supposed Belgic boundary. The three great megalithic monuments of the south and west of England are Stonehenge, Abury, and Stanton Drew; and of these Stanton Drew is the smallest. It consists of three stone circles, or more properly a central oval and two small circles, which seem to have been connected with it by stone avenues, and give the appearance of two serpents passing out of a central inclosure. Such it has been taken to represent. The first writer by whom it is mentioned is John Aubrey, A.D. 1664, who says that he was told that the number of stones were much diminished within a few years of his time; and Dr. Stukely speaks of a "late tenant who, for covetousness of the little space of ground they stood upon, buried them for the most part in the ground." Mr. Long states in his interesting memoir of Stanton Drew, in the *Archæological Journal*, vol. xv., p. 200, it does not appear that since Stukely's visit, A.D. 1723, a single stone has been removed, and we trust that the day is past when historical monuments such as these shall suffer wanton destruction. John Aubrey first brought Abury and Stanton Drew into notice, the former A.D. 1648, the latter in 1664. Dr. Musgrave, in his "Belgium Britannicum," vol. i., p. 206, A.D. 1719, gives an account of Stanton Drew, and illustrates it by an accurate plate of the structure as it then stood. Keysler, in his "Antiquitates Septentrionales," 1720, gives a short account of Stanton Drew; but none of these writers appear to have been aware of the existence of the cove, or of the circle which is near it, as their descriptions are confined to the portions of the structure in the field near the river. Collinson briefly describes Stanton Drew in his history of Somerset, published A.D. 1791; and Seyer, in his history of Bristol, A.D. 1821, gives a more detailed account, with measurements of the stones, and lithographic drawings. The best plan of Stanton Drew is that given by Sir R. C. Hoare in his modern Wilts, from a survey by Mr. Crocker. The cove is situate a little to the south of the parish church, and is formed of three stones standing in an orchard. The two side stones are still standing, but that which formed the back is fallen down. These three stones are 18 in. thick, and the respective lengths from 10 ft. to 14 ft. The cove is 10 ft. wide, and about 8 ft. deep, and opens to the S.E. The first circle is distant 157 yards from this cove, in an easterly direction. The number of stones which originally comprised it appears to have been twelve, and the diameter of the circle, according to Mr. Crocker, is 129 ft. There are now remaining in the orchard, in which it is partly situate, six stones, and three in the adjoining field, and one under the wall, which separates the orchard from the field, making ten in all. One hundred and fifty yards from this circle, in a N.E. direction, is the great circle, the diameter of which, according to Mr. Crocker's measurement, is from east to west, 345 ft., and from north to south, 378 ft. It is, therefore, strictly speaking, an ellipse with the longer axis from north to south. The number of stones remaining is fourteen, of which three only are standing; others are said to be beneath the surface. The tallest of the standing stones is 7½ ft. high, and about 6 ft. thick. They are all of a very rude appearance. Eastward from the great circle, at a distance of 150 ft., is a circle of eight stones; its diameter is 96 ft.; four only are now upright. Adjoining this circle on the east and south are seven scattered stones. The general opinion respecting these stones (says Mr. Long) is, that they formed a sharply curving avenue, which connected the circle of eight stones with the large circle. From the mention made by Aubrey that the number of the stones had diminished much within a few years of his time, we may conjecture that the corresponding avenue which led to the great circle from the other circle in the orchard, has been carried away or buried, and thus we have the structure at present in an imperfect state. The stones appear to have been procured near the spot where they now stand, from a stratum about 6 feet under the surface. Most of the blocks are stated to be composed of conglomerate, which has been slightly coloured by red oxide of iron, but there are others of a much finer grain. For a fuller account of the geology of the district, I must refer to Mr. Long's paper in the *Archæological Journal*, which will be found to contain, as I think, nearly all that can be said on the subject of Stanton Drew, and we have reason to feel thankful that in the present day gentlemen of learning, ability, and leisure can be found to undertake the elucidation of these interesting monuments.

Stonehenge.—The remarks of Mr. Scarth on Stonehenge, were similar to those made by him when he conducted the excursion in connexion with the British Association thither, and which were reported in our columns at the time. Having spoken of Stonehenge at some length, the rev. gentleman thus concluded his paper:—We have now traced the megalithic monument from the simple stone, or Maen-hir, to the Dolmen or Cromlech, or stone chamber, and to the stone circle simple, and with the avenue also, and we have seen its magnitude and extent, and how it has at length assumed the more finished form in the circle at Stonehenge. We have considered the curved avenue at Stanton Drew and Abury, as well as the straight lines on Dartmoor. These megalithic structures are not confined to this country alone, or to Brittany, but cromlechs are frequent in parts of India and in other countries, and allusion seems to be made to them by many classical writers, as may be seen in Mr. Deane's chapter on Serpent Temples (see Serpent Worship, p. 398 and following). It is not my purpose, even if time would allow, to follow the conjectures which have been hazarded on this subject, or to submit any of my own. I will only say that in these circles and other megalithic structures, we have evidences of mechanical skill which raise our ideas of the state of society in which they were erected. We have evidences of united labour and united effort in an age when the habits of life were necessarily simple, and the knowledge of constructive arts very rude. But whether we regard these avenues and stone circles as sacred or consecrated localities, or as hypæthral temples, or as dracontia, or as the seats of justice and administration of the laws, we have monuments of a very remote age, and of a very simple and primitive people; and if we would preserve the memorials of our national progress, and treasure up its historical records, we should carefully preserve these records of its primæval inhabitants.

THE METROPOLITAN SEWAGE QUESTION.

THIS subject is at the present moment exciting no little interest and attention, and statements and opinions given in the *Builder* long ago are being repeated, and will, we hope, be acted on.

A special Court of Common Council of the city of London was held on Saturday, at the Mansion House, for the purpose of taking into consideration a report of the Corn, Coal, and Finance Committee of the corporation upon the subject of the utilization of the sewage of the metropolis, the matter having been referred to them upon the requisition of a public meeting of inhabitants of the City.

The Lord Mayor presided, for the first time since his installation to that office.

The report that was the subject of the meeting had already been made public. It was to the effect that the committee, fully aware of the great importance of the subject, not only to the ratepayers, but to all classes of the community, had attentively considered it in all its bearings, and had been favoured with the assistance and advice of Lord Robert Montagu, M.P., and Dr. Brady, M.P., both of whom had acted as chairmen of committees in the House of Commons upon the utilization of the metropolitan sewage, and they had collected all the information in their power: the result they had arrived at upon the present state of knowledge of the subject was, that nothing should be done at present, but further and thorough investigation should be instituted without further delay, either with the sanction of Parliament or of the Imperial Government.

After some discussion, the report was unanimously agreed to; after which it was moved by Mr. Lawley that the committee should be instructed to take the necessary steps to obtain a Royal Commission, and this led to some further discussion. The Common Serjeant, who was appealed to in the course of the debate, expressed his opinion that it would not be prudent for the corporation to apply to the Government to issue a royal commission, as they had no power to control the scope of such a commission, and the result might be to materially affect the principle of local self-government. Mr. Lawley upon this withdrew his motion, and another resolution empowering the committee to confer with the Government, and to take any other steps they might deem advisable in the matter, was agreed to, after which the court adjourned.

In the report under discussion, the reporters say:—

"Your committee find that two systems of utilisation are advocated,—the one, that of large quantities poured from open carriers over grass exclusively, as at Edinburgh and Rugby; the other, that of moderate dressings of sewage, as applicable to all descriptions of crops, by the hose and jet, as at Cashiobury Park, Watford, by the Earl of Essex; at King's Weston, Bristol, by Mr. Philip W. S. Miles, M.P.; and at Tiptree Hall, by Mr. Alderman Mechi.

Your committee are of opinion that the results obtained by Lord Essex, Mr. Miles, and Mr. Alderman Mechi, as well as by other witnesses examined by the two select committees of the House of Commons presided over by Lord Robert Montagu and Dr. Brady, prove that it is by careful and moderate dressings, applied by the hose and jet over large areas, and not by large applications flooded from open carriers over small areas, that the home supplies of food will be most increased by the utilisation of the metropolitan sewage, and that the farmers using that sewage will be best enabled to pay a fair price for the manure; and, having regard to the vast quantity of the metropolitan sewage, and that it will only be used in addition to the farmyard manure made on the land, your committee are of opinion that, to insure its being sold at its value, works of distribution must be laid down, so as to bring it within reach of a very extensive area, it having been stated by a competent witness before the select committee of the House of Commons, that it should not be less than from 500,000 to 600,000 acres. It would be difficult for any company proposing to utilise the sewage on its own lands to purchase or lease so extensive a tract of country; and, if it were possible, it would be contrary to public policy to make over to any company such a vast amount of manure for its own purposes, to the prejudice of the general body of farmers, thus creating a gigantic monopoly. Your committee are therefore of opinion that any company proposing to deal with the London sewage should simply be distributors of the manure to those who would utilise it.

Before, however, any concession be made, your committee would suggest that a further and more searching investigation should be undertaken into the whole of the schemes for the economic sewage utilisation, in order to avoid, as far as possible, all risk of error, and to secure for the best system and the most satisfactory plan such an amount of national confidence and support as shall insure not only the prompt and profitable utilisation of the metropolitan sewage, but that also of the other cities and towns of the United Kingdom."

The letter of Baron Liebig to Lord Montagu is appended to the report.

The Islington vestry had a special meeting on the subject of the utilization of the metropolitan sewage on Monday evening, when Mr. Bolton moved—"That this vestry having heard with surprise that the Metropolitan Board of Works intend to dispose of the metropolin sewage without previously affording opportunity for the consideration of the scheme they intend to select, hereby protests against such a course being taken, and requests the representatives of the parish at the Board to oppose the sale of the sewage until the public have had an opportunity of considering the intentions of the Board."

In doing so he entered at much length into the question, and criticised rather severely the conduct of the Metropolitan Board in dealing with the matter.

Other speakers followed, with equally strong language, deprecating what they regarded as hurry on the part of the Metropolitan Board; and urging the alleged advantages of Mr. Ellis's scheme over that of Messrs. Hope & Napier, which the Metropolitan Board were then on the eve of adopting. Others denied that there had been any hurry, the respective schemes having been for some time before the Board. An amendment disapproving of the disposal of the metropolitan sewage to Messrs. Hope & Napier, and requesting the representatives of the vestry at the Board not to support such measures until due care had been taken to ascertain whether the project of these gentlemen was practicable, and whether the terms they offered were the best that could be obtained, gave rise to an animated discussion of three hours' duration, at the end of which the amendment was put and lost, and the original motion was agreed to all but unanimously; and it was further resolved that a copy of the resolution be forwarded to the Metropolitan Board of Works.

The report of the Main Drainage Committee of the Metropolitan Board on the application of sewage at Croydon, Rugby, Carlisle, and Edinburgh, has been published. The information in it is not very precise. Towards the close of the report, they say:—

"The committee consider that the evidence they have collected will prove of assistance in arriving at a sound conclusion in reference to the sewage of London. At Croydon they saw that the operation was successful, though on a limited scale, and were informed that the results were remunerative. At Carlisle, where the only process was employed to prevent decomposition of the sewage, they learnt very curious statements of its collateral advantages. At Edinburgh they witnessed the beneficial result of many years' experience of the profitable application of sewage to sea-sand. Your committee were not able to ascertain, during their visits to these several places, the chymical composition of the sewage of any of them, or the precise quantity of sewage applied annually, or during a given time; still less did trustworthy experiments appear to have been made as to the quantity which could most advantageously be employed. The same uncertainty prevailed as to the amount of grass cut, or hay made, or cattle fed, upon either the sewaged land or that adjoining, obviously a most necessary element of comparison."

They were told at Rugby that an acre of the land irrigated with the sewage, originally worth 1*l.* 15s. per annum, might now be considered worth at least 3*l.* 10s., but the tenant doubted whether he benefited by the irrigation of his farm.

At Croydon they were told that 3,000 tons per acre per annum of excreta were derived from a population of about 17,000, and that a tenth of the 250 acres irrigated was under irrigation at one time, and that each acre was under treatment thirty-six days in the year. In about five hours the sewage flows over the land, and is entirely deodorized. In two days it flows off nearly tasteless, colourless, and inodorous. The greater portion of the farm is sown with Italian rye-grass, which requires resowing every three years, and appears to produce the largest results; but some parts are still in natural pasture. It is rented by the Croydon Local Board at 4*l.* per acre, and is sub-let to Mr. Marriage at 5*l.* per acre, so that the Local Board obtain an improved rent of 250*l.* per annum, which goes in reduction of their local rates. The committee could not ascertain the exact weight of grass produced.

At Carlisle they found that Mr. M'Dougall had just let 105 acres to a butcher, at a rental of 800*l.*, or a gross profit rental of 482*l.* Here, only, the decomposition of the sewage is prevented by chemical action, to the advantage, it was alleged, of the soil on which it was distributed.

The sewage of a part of Edinburgh, as every one must know, has been used for irrigation for 200 years on the same land. There are comparatively few water-closets to increase its value. The larger area under irrigation has only been about thirty-five years under treatment. Near the shore it is mere sand, originally worth 5s. an acre, but now assessed at 22*l.* an acre. Other parts originally worth 6*l.* 10s. an acre now produce 30*l.* The sewage is not so well deodorized at Edinburgh as at Carlisle and Croydon.

On Tuesday the Metropolitan Board held a special meeting as to the tenders for disposing of the sewage of the metropolis. A report was brought up from the Main Drainage committee recommending the Board to give them authority to negotiate with Messrs. Hope & Napier as to the precise terms on which a concession might be granted to these gentlemen for the disposal of the sewage on the north side of the Thames. Mr. Freeman moved that the report be received and the recommendation of the committee adopted. A very full discussion ensued; and, notwithstanding that several amendments were moved, the original motion was carried by a majority of 26 to 9.

If it be true that an epidemic has already been raging at Woolwich in consequence of malaria caused by the sewage of the northern outfall at Barking Creek, the necessity for prompt measures is made further obvious.

In connexion with the general question of the disposal of sewage, we may add that the utilization of sewage is at present creating a stir in Birmingham; and that the Sheffield corporation have addressed a memorial to Sir George Grey on the same subject, in which they pray that Sir George will introduce a Bill in the next Session of Parliament to carry out the recommendation of the Parliamentary committee, and effectually prohibit sewage and any foul and offensive matter from being discharged into streams and rivers.

The question of an outfall sewer is at present under consideration at Sheffield. The surveyor has been required to prepare plans for one to Blackburn Forge; but an endeavour has been made to induce the council to rescind this order till the surveyor prepare a report upon the whole scheme of carrying the sewage from the town, and utilizing it; giving at same time an estimate of the cost. The surveyor meantime has expressed his intention not to report upon the matter or make his plans until he has visited most of the chief sewage works in the country, and seen some of the most eminent engineers who could advise him as to the best plans to adopt.

ST. MARY'S, ABERDARE.

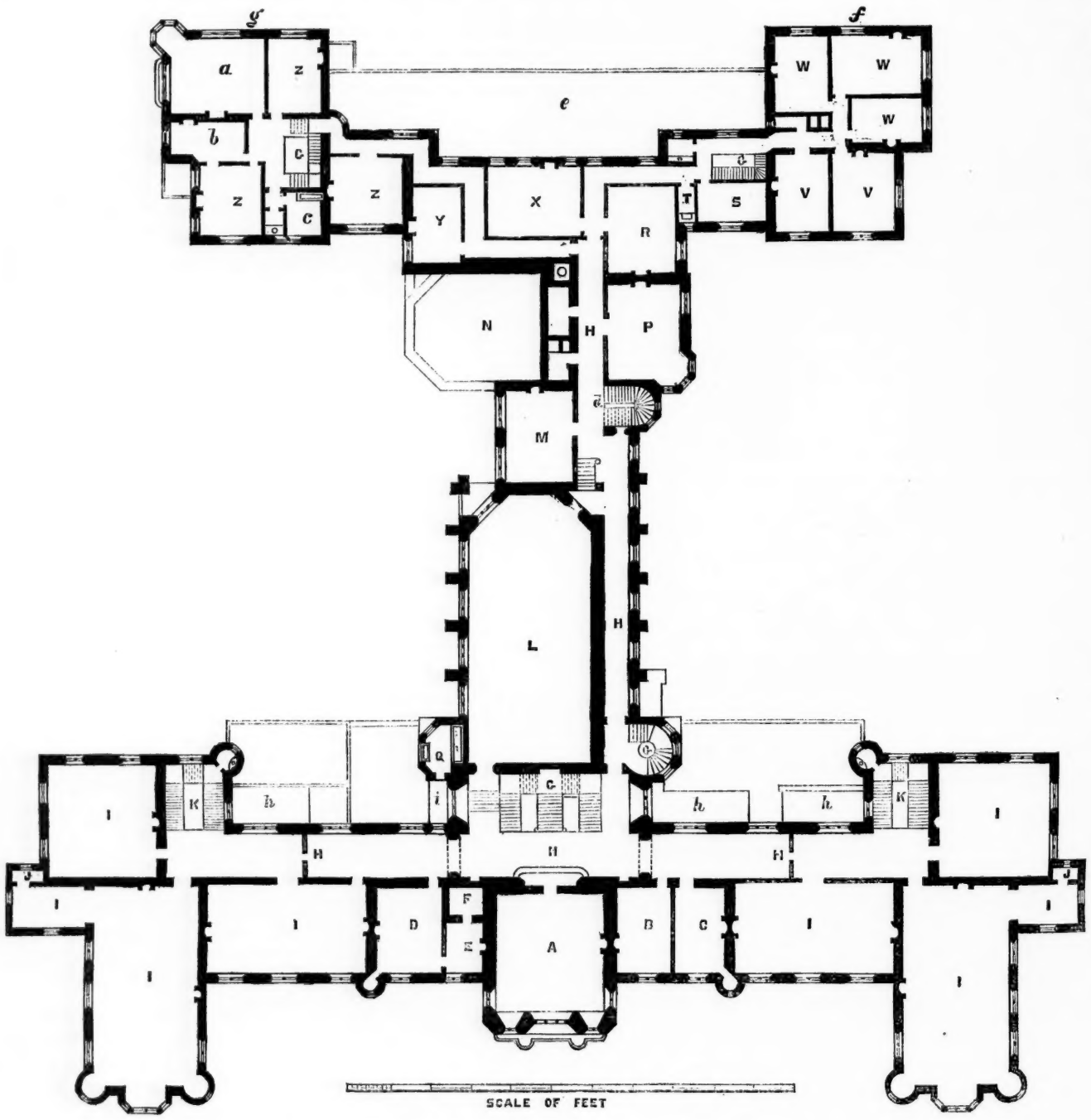
This new church has been consecrated. The building is in the French Gothic style, rather freely treated. The edifice is constructed with the Newbridge stone, with Bath stone dressings. It is divided into nave, side aisles, chancel, side chapels, and a vestry under the tower. The nave arcade is carried on complete. Iron columns separate the aisles from the naves. The shafts on the responses and in the chancel are of green Bridgend stone with carved Bath stone capitals. No clerestory is employed; and the roof, which is of an open wooden construction, springs nearly from the centre of the arches. Some of the side windows are placed in the gables. Most of the glass employed is of a greenish hue. Both nave and aisles are filled with open benches painted in imitation of oak, and calculated to hold about 700 people. The carving, which is profuse, is in the style peculiar to the era. The exterior has a marked appearance, partly derived from the peculiar colour of the Newbridge stone and the profuse Bath stone dressing, as well as from the number of gables (six), thrown up on the south and north sides, breaking up the roofs and relieving it from the monotonous appearance of the slated roof. The tower springs from the south side of the building, and is 90 ft. high, surmounted by a deep roof, topped with ornamental iron work. The length of the building is 100 ft., with a breadth of 52 ft., and enclosed in a court-yard, surrounded by four low walls, with ornamental iron railing at the top. The interior of the yard is planted with trees and shrubs. The whole of the carved work, both wood and stone, has been done by Mr. G. Whittington, of Newport, Salop. The architect was Mr. Arthur Blomfield, of London, son of the late Bishop Blomfield. The builder was Mr. P. Rees, of Aberdare. The contract was taken at 2,990*l.*, but the total cost will be about 3,800*l.*

TELEGRAPHIC PROGRESS.

The process of manufacturing the cable for the Atlantic telegraph is rapidly proceeding, and it is calculated that if the submergence of the line be satisfactorily accomplished, the communication between Great Britain and the American continent will be completed by the close of July next. There are seven copper wires to form the conductor. The entire length of the telegraph will be 2,300 miles, so that there are 16,000 miles of copper wire. Every portion of this copper wire is subjected to electrical tests to ascertain its quality for conduction before it is allowed to be worked up. The next stage is to coat these wires with eight successive coats of the insulating material, equal to an aggregate length of 18,400 miles. This core is next covered with jute, wound round it from ten strands, making 23,000 miles of jute yarn. Then comes the outer coating formed of the ten covered iron wires. The iron wire itself is 23,000 miles in length, and each wire is covered separately with five strands of tarred hemp, 135,000 miles of the latter being required, making together an aggregate length of material employed of 215,500 miles, or very nearly as much as would put ten girdles round the earth, or form a line that would stretch almost from the earth to the moon.

FETTES COLLEGE, EDINBURGH.

The first stone of this building, of which we give a view and the plan of one story, was laid at the end of June last. It is being erected from the designs of Mr. David Bryce, architect, and will cost about 70,000*l.* The contractors for the building were,—Mr. Alexander Morrison, mason's work; Messrs. Beattie & Sons, carpenter's work; Mr. M. Carstairs, plumber's work; Mr. Jas. Allan, jun., plasterer's work; Mr. Thos. Crombie, slater's work; Messrs. Todd & Sons, iron-work; and Mr. Parnell, warming and ventilating.



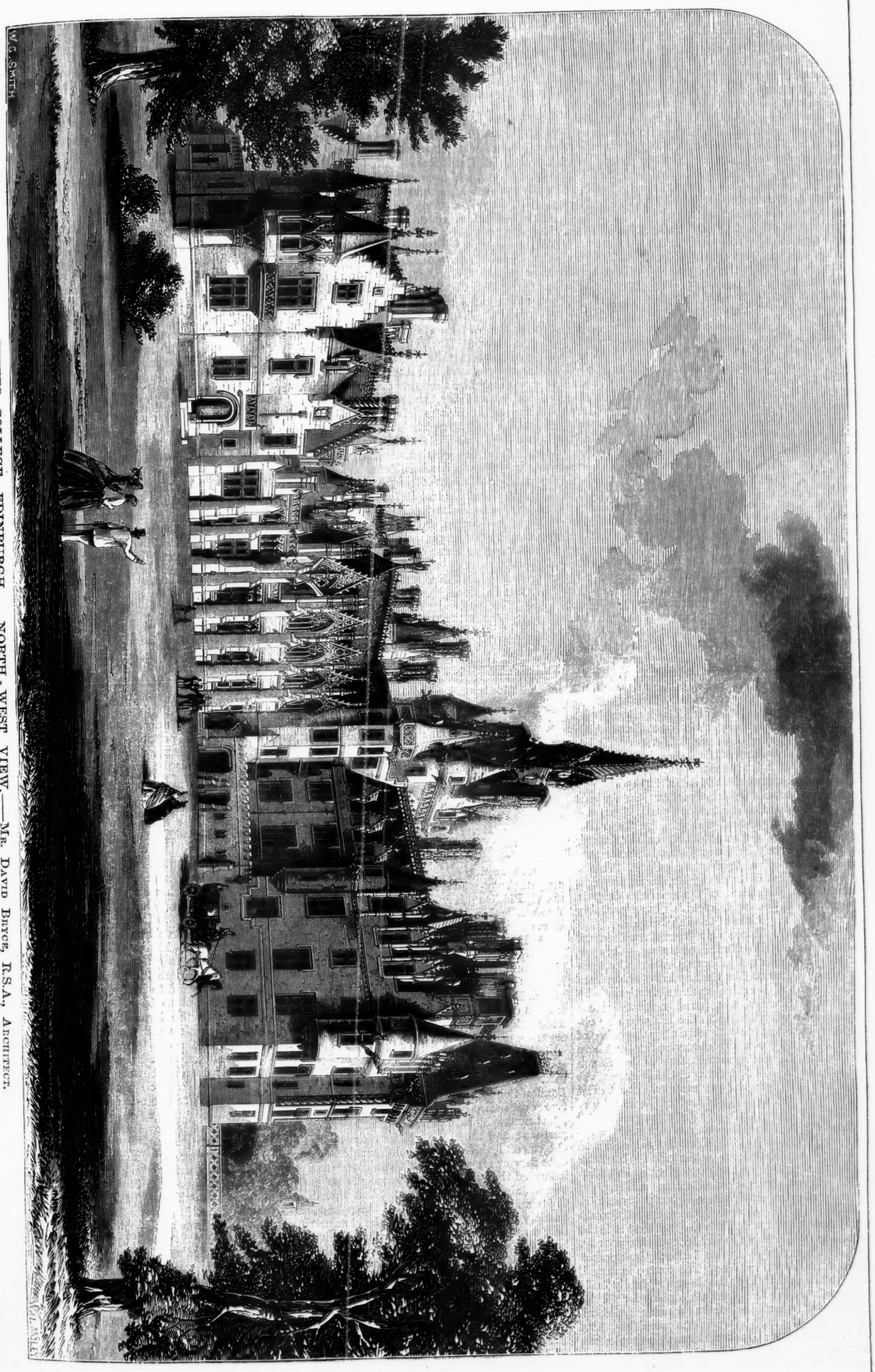
FETTES COLLEGE, EDINBURGH.—*Plan of Class-Room Floor.*

The south and main front is 270 ft. in length, and includes a central tower, 190 ft. in height, with corbelled turrets at the angles. In the ground-floor of the tower the principal entrance to the college is placed, and over it is a projecting balcony. Three of the four stories in the tower which rise above the balcony are recessed in the centre, and surmounted by an elliptical arch. Above the arch, the tower resumes its square form for some distance, when it ends in a corbelled balcony, from which the spire takes its rise. On the ground-floor the space on either side of the tower within the projecting wings forms a piazza with an arched front. The wings have corbelled round towers at the front angles above the ground-floor, which are carried up and finished with conical roofs and iron finials. From between these round towers a crow-stepped gable springs, and in the centre of the front of each wing there is a large oriel window, surmounted by a carved parapet. The front portion of the building terminates at either end in a square tower. These towers are finished with spiral shafts at the angles, and terminate in lofty roofs, which spring from enriched cornices. Two slight round towers, rising from a buttress at the height of the first-floor, flank, at a short distance, the central tower, and relieve the expanse of wall between it and the side wings. These towers are each surmounted by sculptured figures. The main roof contains two tiers of dormer windows, and is finished with an iron brattishing. The ground-floor of the front part of the college is chiefly occupied by the piazza, gymnasium, work-rooms, and accommodation for the warders. At the north-west end of the anterior limb of the college is situate the dwelling-house of the rector. The two portions of the college are connected with each other by the chapel, seen in our view, and a range of offices. The chapel has the dining-hall incorporated with it, the latter occupying the ground-floor. The chapel rises above the buildings attached to it on the north side, and that end of it has been reduced to an octagonal shape. Projecting buttresses, terminating in pinnacles, divide the building into five bays, and at the north-west and north-east angles, double-flying buttresses have been introduced. The arched windows of the chapel are filled with tracery, and each is surmounted by an open traceried gable, crocketed. Internally, both the chapel and dining-hall measure 56 ft. by 30 ft., and the former has an open timber roof. The external walls will be composed of stone, either from Craigleith or from a quarry in Fife.

REFERENCES TO PLAN.

A. Governors' Room.
B. Visitors' Room.
C. Master's Retiring-room.
D. House Governors' Business-room.
E. Charter-room.
F. Safe.
G. Staircase.
H. Corridor.
I. Class-room.
J. Closet.
K. Staircase to Class-rooms.
L. Chapel and Dining-hall below.
M. Upper Servants' Dining-room.
N. Kitchen continued.
O. Pantry.
P. Matron's Room.
Q. Coal Depôt.
R. Work-room.
S. Housekeeper's Bed-room.
T. Housemaid's Closet.
U. Stairs.
V. Sick-room.
W. Women Servants' Room.
X. Store-room for Linen, &c.
Y. House Steward's Bed-room.
Z. Bed-room.
a. Drawing-room.
b. Dressing-room.
c. Bath-room.
d. Private Stairs.
e. Culinary Department below.
f. Laundry Department.
g. Rector's House.
h. Open space.
i. Balcony.

FETTES COLLEGE, EDINBURGH. NORTH-WEST VIEW.—Mr. David Bryce, R.S.A., Architect.



FETTES COLLEGE, EDINBURGH. NORTH-WEST VIEW.—Mr. David Bryce, R.S.A., Architect.

THE ANTIQUARIAN DISCOVERIES AT BRADWELL.

We lately published a short account of the visit of the members of the Essex Archæological Society to the ruins of the ancient city of Othonia, discovered a few weeks ago by a land-reclaiming company, on a point of land in Essex formed by the confluence of the river Blackwater and the German Ocean. We now give some additional particulars, which will be read with interest. The excavations on the south side of the ploughed field, which consists of raised land, have revealed a piece of wall 23 ft. long and 5 ft. 6 in. high. It is 15 ft. in thickness, built of layers of almost squared stones of three courses each, alternated with courses of tiles of three or four rows, and is unquestionably Roman work, and must have been built before the Romans left this country, during the reign of the Emperor Valentinian, about the year 400. Near this wall were found three skeletons. The skulls were close to it; and in each case a Roman coin was found close to the ribs, as if at burial it had been placed in the hands, or under the tongue of the deceased, which was more in accordance with custom, and in time, by the decay of the body, it had fallen. These coins had evidently been placed, in accordance with the heathen custom, for the purpose of paying Charon for ferrying the soul over the river Styx to the land of rest. No sooner was this portion of the wall discovered than it was immediately conjectured by Mr. J. Oxley Parker, the gentleman to whom the land belongs, that it was but a part of some fortress. Accordingly, men were set to dig in various places in the field, and the result was that the same kind of building, having a uniform run of sets-off, was discovered, extending to a great distance and forming nearly a square embracing about three acres. The wall also still revealed the same thickness, and almost every shovelful of earth brought to light some curious relic of pottery, or a bone, the latter being probably the remains of some soldier picked from the cohorts of Rome. Another curious fact noticed was that in some places where the men dug, the very soil which formed the foundations of this massive work was made up of broken materials and rubbish which could only be accounted for by the supposition that before the Romans built this wall there had existed buildings belonging to probably a pre-Roman period. In some places were found skeletons apparently not Roman; for instance, five were discovered laid in confusion, with their faces downwards: no coins were near them, and it is surmised that they were the remains of Saxons or Danes killed in the attempt to make a conquest of the fortress. On the east side of the wall, and about 60 yards from the first-discovered portion, there have been laid bare walls of a different kind, built of rough stones, but firmly held together with intensely-hard mortar, of a light pink colour. This is probably the remains of a villa, for in the rear there is a huge deposit of oyster-shells deep in the ground, the contents of which have probably gratified the appetites of the inhabitants.

Near this villa have also been found several coins, of the following Roman emperors,—Crispus, Julian, Constantius, Gallienus, Gratian, Constantinus, and Caracius; but many have their discs obliterated. A bracelet, such as was worn by ladies of distinction, was found near the same place. At some distance to the left was also observed a dust-hole, or pit, containing the ashes of the station and bones of goats and swine, and here and there pieces of armour. One or two Saxon coins have also been found. It is somewhat singular that these ancient remains should exist close to the building described in the *Builder* of the 5th inst., the origin of which has puzzled all archæologists. The discovery of the ruins, however, has thrown some light on the subject; and although two or three antiquaries who have visited the interesting spot within the last fortnight do not consider it a Roman building, yet others contend that the presence of Roman tiles liberally used in its construction, and its contiguity to the ruins, establish the fact that it is the most ancient building in existence in the county. Some antiquaries recognise in it all the appearances of a Roman basilica. The centre is raised, and, in all probability, has been originally built in that form, and therefore convenient for all the purposes of a building used as a market, a court of justice, or place of religious worship. The eastern end is now built up in modern style, but in the wall there are the remains of an apse similar to the basilica of St. Paul's, at Rome. This, however, has been considered by those who hesitate to pronounce the building of Roman origin, to have been the apse in use when it was converted into a church, or originally built as such. The roof is modern, owing to the destruction of a great portion of the edifice, at some distant period, by fire. This ancient erection is spoken of by old historians as having a tower (probably a small one on the roof) and two bells, and that a priest officiated in it on Sundays, Wednesdays, and Fridays. But so far back as 1442 it appears to have puzzled the learned, for a "verdict" of a jury upon the building at this period informs us that this church had a chancel, nave, and small tower with two bells; that it was burnt; as to the period, however, when the church was founded, and by whom, this jury knew not. In all probability there will be further light thrown on the subject of these ancient erections and ruins in the course of a few weeks by the progress of the excavations. Possibly within the area inclosed by the walls will be found tesselated pavements, skeletons, coins, and other relics of the Roman occupation. It seems, admitted, however, that this spot is to be identified with the ancient Roman city of Othonia, which was subsequently called Ithanacester by the Saxons, a corruption of *Othona* and *castrum*, the castle or station of Othona; and that the sea, after having advanced on this ancient city, and covered it for a thousand years, is now retiring and bringing to our notice not only the remains of a once populous Roman city, but also an ancient pre-Roman town of the early Britons. It is a remarkable fact that several places in Essex were named by the ancient Britons after the gods they worshipped. For instance, Helmsted owes its origin to the goddess Helmsteed; and in the same way Othona, or Ithuna, is probably a corruption of the word Iduna, a goddess of great repute before the Roman invasion.* For the information of those who may wish to visit the place, we may observe that Bradwell-juxta-Mare is sixteen miles from Maldon, the nearest railway station.

THE ACHITECTURAL ASSOCIATION.

The usual meeting of members was held on Friday evening, the 11th instant, at the House, in Conduit-street.

The chair was taken by the President, Mr. J. H. Christian.

The following gentlemen were elected members of the Association: — Mr. A. G. Colpoys, 37, Bedford-place, Russell-square; Mr. J. C. Scoles, 146, Marylebone-road; Mr. B. A. Paice, 38, Upper Bedford-place; Mr. Edward Marfee, 2, Oriental-place, Peckham; Mr. E. H. Bearne, 120, Albany-street; Mr. Isaac Jones, 50, Gerrard-street, Islington; Mr. M. C. Bramwell, Oxford; Mr. S. W. Tracy, Bedford Chambers, Southampton-street, Strand; Mr. J. E. Walker, 26, Chelsea-villas, Brompton; Mr. J. H. Hargrave Stevens, 468, Hackney-road; Mr. G. J. Lough, Tachbrook-street, Pimlico; Mr. F. Payne, 56, King-street, Whitehall; Mr. E. H. Horne, 71, Adelaide-road, Haverstock-hill; Mr. W. R. Tilling, 37, Alpha-road, Regent's Park; Mr. A. Pite, 38, Bloomsbury-square; Mr. W. T. Law, Wood-street, Northampton; Mr. W. Warne, 10, Cloak-lane, City; Mr. R. Groves, 23, Alwyn-street, Islington.

Mr. E. G. Tarver brought under notice the subject of the proposed class for figure-drawing, which, he observed, it would be desirable to organize as soon as possible. The sub-committee which had been appointed to take the necessary steps with regard to securing necessary accommodation for the class had inspected the West London School of Art, in Bolsover-street, where two rooms were offered them. One was a small apartment which might hold twelve or fourteen persons; and the other a large room (containing the casts of the school), which would accommodate fifty or sixty persons. The committee were informed that the large room might be had for two evenings in the week at 3*l.* a month, and the smaller room at 2*l.*; but they had subsequently been informed that the larger apartment only was now available. A competent instructor had been found in the person of Mr. Poynter, who would give his services to the class at a remuneration of 2*l.* per month. The cost of models and other incidental expenses would be about 2*l.* per month more, making a total expenditure of 7*l.* The sub-committee suggested that arrangements should at once be made for the assembling of the class, and that possibly Tuesday and Thursday evenings might be the most convenient for the members joining to attend.

The Chairman observed that if the use of the casts was to be included in the rent of 3*l.* per month, he thought it moderate; and recommended that the offer of the West London School of Art be accepted. He was also glad to hear that the services of so efficient an instructor as Mr. Poynter could be secured.

Mr. Tarver said that the class would have the privilege of using the casts, and that the rent would include lighting and heating the room.

After a short discussion, it was resolved to carry out the arrangement as suggested by the sub-committee, in order that the class might meet with as little delay as possible.

Mr. J. P. Seddon, who had promised to read a paper on "Tone in Architecture," having apologised for the accidental loss of his paper, then proceeded to make some observations on the subject, which he illustrated from time to time with diagrams and the drawing-board. He observed that, in his opinion, English Gothic was the best, and that there were no moderate-sized buildings on the Continent which could compare with such specimens of church building as Great Walton Church, in Norfolk, and that of Stone, in the neighbourhood of the metropolis. Much of the tone of architecture depended upon the materials employed; and, for his own part, he preferred as near an approach as possible to the old Roman brick, 10 in. long by 2½ in. high. With regard to stonework, ragstone was, in his opinion, very awkward to work, and anything but seemly when used. The great thing was to get work long and thin, putting every stone on its best bed, and getting a good quoin formed with a double stone. To insure this, he would have the stone dressed. Irregular rangework, well carried out, had a good deal of tone in it, and made the face-wall look much better than could be accomplished by the introduction of unnecessary and costly architectural details. The quality and colour of the slates to be used were also important considerations. He had himself used some excellent slates from the neighbourhood of Haverfordwest. Stone tiles were, of course, more expensive, but those invented by Mr. Taylor were very satisfactory of their kind. He also recommended young architects to be particular in obtaining really good stained glass and good ironwork, as dissimilar as possible to the quaint spiky stuff which some persons seemed anxious to introduce. Care ought also to be given to encaustic tiles for pavement, and these could be had of Mr. Godwin, or Messrs. Maw & Co., who produced as good an article as any made in ancient times. In conclusion, he recommended students of architecture to avoid vulgar showiness, incongruity, and exaggeration, all of which were inconsistent with a good tone in architecture.

Mr. Webber commented upon the difficulty of getting good thin stone in the metropolis, and inquired of Mr. Seddon what stone of the sort was accessible for London work.

Mr. Seddon replied, that very good stone could be obtained in Monmouthshire and Glamorganshire, and that quarries were to be found at Newbridge, from which it might be conveyed by way of Cardiff to London. He recommended architects not to be always led by information obtained in the immediate locality of the place in which their work was to be carried out, but to examine the old farmhouses and buildings in the neighbourhood, by which means they might probably obtain a better stone.

Mr. Spiers agreed with what had been said with reference to adopting the Roman form of brick as much as possible, and spoke of the enduring properties of those found at Rome and at Herculaneum.

Mr. Webber called attention to a stone from Dorsetshire, now being used for dressings in some new houses in Cheapside. If the stone in question would be found to bear the London atmosphere, its introduction would be desirable; but this time alone could prove. It was not, however, much liked by workmen, because it was prepared at the quarry. On this account, perhaps, it was that they discouraged its use, and described it as a soft sandstone, which he fancied it was not.

A member called attention to the use of an artificial slate made, as he understood, in the neighbourhood of Harwich, which experience had shown to be open to three objections. The first was that it was very heavy; the second that it absorbed a great quantity of moisture, and consequently tended to make the building

* In confirmation of this, the discovery of a Tascian Roman pre-historic small silver coin, in the possession of Mr. J. O. Parker, is a plain proof of the pre-Roman occupation.

(especially if open-roofed), very cold; and, thirdly, that when exposed to a low temperature, it became extremely friable.

Mr. Eddis said he had found a very useful stone in Mid-Sussex, near Horsham, which, when first taken from the quarry, was of a dark colour, but which, after being exposed to the atmosphere, assumed a grey tone very agreeable to the eye.

Mr. Webber observed that, in his experience, he had tested the desirability of making extended inquiry for stone before selecting that which might be recommended by interested persons on the spot. In one case, he found an excellent stone in an old mansion-house in the neighbourhood, and on inquiry he obtained a supply of the same description on the estate on which the building was to be erected, and the cost of which was merely nominal as compared with that which had been recommended to him.

Mr. Tarver expressed a hope that greater attention would be paid to iron work. Some recent examples which he had seen reminded him of fireworks more than anything else, while others resembled ruled music! He recommended that such abominations should be carefully eschewed.

The Chairman saw no reason why the flat or Roman brick should not be more generally used. He was glad to say that there was no longer much difficulty in getting a supply of them.

After some further discussion, a vote of thanks was passed to Mr. Seddon for his address.

The next subject for the Class of Design is, "A Side Elevation," and the meeting on the 25th instant will apply itself to discussing reports and the Architectural Alliance.

BRAIN-WORK.

Within a recent period death has been busy with persons engaged in literature and art. Men of mark have been called away, when, by years of experience of human life, by long observation of nature in its various phases, and by the acquisition of the mechanical skill which is needed in the production of books or of pictures, they had fitted themselves for greater things, so that we might, if it had been allowed for them to have lived to the allotted time of man's age, have looked for much that would have been honourable to the labourers and advantageous to the community. The pursuit of literature or of art, especially when employed in periodical publications, involves an incessant wear of the brain. There is a never-ending care for the provision of each week's materials, and the mind is seldom at rest. The mill is incessantly at work: the bow is always bent; and, before the due time comes, the mill stops; the bow is broken.

We are often forced into such reflections when we glance around and miss so many contemporaries and associates as we do. Let our readers look round their own particular circles, and it will be found how large is the number of those who, having hardly worked their brains, have for ever left their places. The last lost, Mr. John Leech, died of a heart disease, which no doubt had long affected the artist's health, rendering him nervous and irritable; so that he has often amused and delighted others when he has been ill at ease himself. The failure of Mr. Leech's health must have partly prepared his friends for the sad event that has taken place; but the end was very sudden, for it appears that he wandered out with a friend on the day before his death, which was so little expected that a children's party had been assembled at the house on the day when the master died.

Of others who were connected with *Punch* in its early days, many have been removed to their last rest; amongst them, Gilbert à Beckett, Douglas Jerrold, Thackeray, Landells, and more.

The peculiarities of the style of art which Leech has helped to render popular amongst us demand a note. We see an evident intention to produce on a wood-block an illustration similar to a free pencil drawing, or slight etching, quite different from the heavily and elaborately-tinted drawings of the Bewick school. In this direction, however, Mr. Kenny Meadows had, to a certain extent, set an example; but to Mr. John Gilbert and Mr. Leech we are mainly indebted for the introduction of this novel and useful style of wood-engraving. A chief merit of Mr. Leech's drawings on wood is the remarkable effect which is produced with little apparent effort: a few lines in the background, by the skilful way in which they are touched in, indicate in a most graphic manner the peculiarities of the scenery, both sea and land: large spaces of white are usually left, but these are so managed that a snowy effect is not given when it is unnecessary. To produce this apparent slightness is of itself a great art, which can only be effected successfully by the greatest care on the part of the draughtsman, the engraver, and the printer.

If we compare the works of Mr. Leech with those of Rowlandson and some others of the small band who have attempted to sketch the passing peculiarities of their time, we cannot fail to notice the neat and careful drawing and the refined feeling pre-eminently shown in the former. The prints by Rowlandson are exaggerated caricatures, and so coarse and unnatural that they would not be tolerated at the present day; but in Leech's drawings we have a combination of artistic excellence, truthful attention to nature, and a display of humour which has seldom been excelled. Moreover, his genius ran in no immoral rut; and, dying, "he has left no block that he would wish to *cut*."

THE STONE-CUTTERS' STRIKE, DUBLIN.

The stone-cutters having applied to the Institute of the Architects of Ireland for advice in this matter, the council, through the hon. sec., Mr. Jas. H. Owen, has addressed a reply to them, suggesting that it is beneath such a body of men to squabble about such a trifle as the setting. In conclusion, Mr. Owen says,—"I hope soon to have the gratification of hearing from you that the stone-cutters have returned to their employment, satisfying themselves with the understanding that neither shall they be excluded from *setting* stone because they are stone *cutters*, nor the masons because they are only stone *masons*; but that competency and the employer's sense of his own interest shall be the only as they are the true tests, and such as are likely from their nature to be permanent."

THE CALIFORNIAN EXHIBITION AT SAN FRANCISCO.

A "Mechanics' Fair," or Great Exhibition, has been held in the capital of California, of which we glean some few particulars from a periodical printed and published in the Exhibition building.

As to the building itself, we are told, with excusable magniloquence, considering that it emanates from a city not fifteen years of age, that,—

"The visitor is completely lost in bewilderment at the vastness of the area, the almost endless variety of the exhibition, and the interminable extent of avenues which have been most judiciously laid out in graceful meanderings among the profusion of tables, stands, pyramids, showcases, columns, and cosy little recesses which appear and disappear by turns, as the admiring visitor threads his way along the mile and a half of distance which he must traverse to make the full round of this glorious palace of Californian industry."

"The very building that contains all these trophies of the victory of mind over matter, to be seen at the present Fair, is a work of mechanical art that will add lustre to the history of the San Francisco Mechanics' Institute Fair of 1864. Its dome—the largest ever constructed in the world of boards and scantling, in beauty of proportion and science of its construction is not excelled by that of the famous St. Peter's at Rome. This beautifully proportioned structure is a worthy casket to contain the many gems of human thought, wrought into forms of power, utility, and beauty more glorious than the diamonds, rubies, emeralds, and pearls of the orient and occident combined."

In speaking of danger from alarms of fire, and the means of rapid egress, our authority, the *Mechanics' Fair Daily Press*, says:—

"It has been suggested by persons fully competent to judge, that though the doors may be few and small, there would be still greater danger if they were larger, and visitors were instructed to make the doors their only places of exit. It is well known that the Pavilion is constructed of a very light description of redwood boards, which any man, with stout boots, may readily kick from their fastenings. There is moreover an abundance of every kind of instrument needed in such an emergency, to readily make openings wherever they may be needed, even through much stronger walls."

Here are one day's receipts:—

"At the door, 1,600 dols.; cheese money, 89 dols.; from skating-pond, 87 dols.; for fruit donated to the Sanitary Fund, 5 dols.: total receipts, 1,781 dols. For Sanitary Commission, 181 dols."

The general nature of the contents of the building may be gathered from the following remarks on the subject:—

"The advance of California in the arts, agriculture, and manufactures, as exhibited by specimens at the present Fair, is most gratifying and important. The manufactures of wool and glass, on exhibition, for variety, quality, and design, are not excelled by similar manufactures in any State in the Union. The value of the articles made directly from the natural productions of our soil—such as resin, turpentine, kerosene, wines, spirits, and others—exhibit the variety of the as yet latent resources at our people's command; while the number, utility, and character of the machines and appliances of machinery for saving labour and other economical purposes, show that the inventive genius of our people is active and triumphant. One important lesson these fairs have taught the people, with incalculable advantage to the country, has been the intimate relationship between art and science."

"Here we find engines constructed with marvellous ingenuity, having for their motive power, steam, hydraulic pressure, running water, caloric and electricity, motors almost unknown in the last century. The very nature of the inventions introduced at this fair speaks volumes in favour of the mental superiority of our local mechanics. Here we find no contrivances to sharpen a pencil, clean a knife, or rock a baby to sleep, such as so many of the Eastern mechanics bother their brains in perfecting; but powerful and effective machines for crushing the hardest rocks to the finest powder, for pumping large volumes of water from vast depths, sawing the largest logs that grow in the world, or to save the impalpable particles of the precious metals."

Towards all who would dare to doubt the superiority of everything San Franciscan or Californian, our enthusiastic authority thus advises his fellow citizens to act:—

"Let us point the new comer to these evidences of our industry, genius, and resources. Where in the wide world at the present, or in all past time, can be found the community, of our age and strength, which can rival, or even reasonably approximate, the display which the mechanics of California are now making in this city? Let us take our new-found and doubting friends by the arm, and walk with them through the aisles and avenues of our magnificent Temple of Industry, and ask them seriously if they can go away and pronounce California anything short of what has been claimed for her by her most sanguine friends. Take them through the Gallery of Arts, and ask them where on the continent, out of the three great metropolitan cities of the East, can they find a better display of artistical talent. Point them to the beautiful floral pyramid which adorns the interior arch of the great dome, and tell them that a display equal to that can be made in this city every month in the twelve! Go with them through our public libraries, and spacious, well-ventilated reading-rooms. Point them to our schools, public and private, and our well-filled collegiate institutions. Have we no literary taste? Take them through our principal streets, point out to them our magnificent churches and other public edifices, and our splendid private residences, furnished with every luxury and comfort known to modern seekers after *otium cum dignitate*. Ask them to consider that they are walking the streets of a city but fourteen years old, and yet the fourth commercial city in the Union, out of whose 'Golden Gate' pours a monthly stream of treasure which, in a decade, has nearly doubled the monetary wealth of the world."

The floral productiveness of the climate all the year round would appear to be rivalled by its frugiferous abundance, if a single bunch of pears in the Exhibition, fifty in number and 19 lb. weight, on a single stem 8 in. long, be any criterion. Our authority may well call this *extra*ordinary; but it seems to augur well for the ordinary fruit crops also.

Taken as a whole, Californians may, it would appear, well be proud of this "grand exhibition of their skill, industry, and taste." It is emphatically, "what it was designed to be—an exhibition of Californian industry." Those who have witnessed the previous exhibitions in this city, according to our authority, "cannot fail to notice the marked superiority of this over either of its predecessors, in the way of a prominence of home over foreign industry."

PUBLIC WORKS IN THE COTTON DISTRICTS.

The last report made by Mr. Robert Rawlinson to the president of the Poor Law Board, shows—"the amounts granted under the Public Works Acts, 1863-64, to each public body, the sum actually paid in each case, and the number of factory and other workmen employed on such works in each district." From this we learn that the total amount at present appropriated is 1,796,646*l.*, of which, instalments amounting to 742,260*l.* have been advanced. The total residue of these loans to be advanced as works progress is, therefore, 1,054,382*l.* But as the whole amount set apart for the purposes of these Acts was 1,500,000*l.* + 350,000*l.* = 1,850,000*l.*, there is yet a sum of 53,354*l.* to be appropriated. Applications exceeding the amount of this balance are, however, now under consideration of the Board.

As to the number of men who were employed upon works during the last week in October, it is seen that there are 4,002 returned as factory operatives, and 2,422 as skilled labourers, making a total of 6,424. But it seems that in Blackburn and in other places, numbers of men, who were formerly factory operatives, and have now, through a long experience upon these public works, become skilled labourers, are unwilling to declare themselves "factory operatives," lest the confession should be taken to invalidate their skill as labourers.

The great demand for stone, bricks, and other

materials, which the execution of improvement works has created, has also been an additional means of providing employment for a large number of persons who are not included in this statement. Mr. Rawlinson estimates them at not less than 2,000, which will make a total of 8,424, who, with their dependent families, will represent a population of from 30,000 to 40,000 persons deriving their subsistence from these works.

Subject to the condition imposed by the Acts, that the works are of public utility and sanitary improvement, the devising, direction, and execution of the works are entirely in the hands of the local authorities and their officers. The Reporter says,—

"Of course the proportion paid in materials, skilled and unskilled labour, must depend upon the character of the works in each instance; but, considering the sanitary advantages of the works undertaken, and the need which existed for their execution, it can hardly be deemed a matter for regret that the local authorities have, in their selection of works, thought as much of sanitary improvement as of the amount of employment which would be afforded to indigent factory operatives."

We can scarcely doubt that great advantages will result from the works that are being executed, quite irrespective of the means of support thus afforded to distressed factory operatives.

MONUMENTAL.

There has been erected in the cloisters of the chapel of the Charterhouse a monument to General Havelock, K.C.B., who was educated at that school. The design combines eight different marbles, and the inscription, in letters of gold on the black plinth, runs thus:—"The schoolfellows of Major-General Sir Henry Havelock, K.C.B., erected this monument in memory of him and of other Carthusians who have fallen in war." The face of the monument is divided into fifteen compartments, gilt, on which are to be painted the names of all who have distinguished themselves and fallen in the service of their country.——The Combermere equestrian statue, subscribed for by the gentry of Cheshire and others, is nearly completed by Baron Marochetti. The figure is 8 ft. high, mounted on a charger, and further elevated by a granite pedestal. It will stand in an open space opposite Chester Castle. The cost will be 4,100*l*.——Merthyr is to have a Town-hall, and chief amongst its decorations is to be a bust of the first member of the borough, Sir John Guest. The sculptor is Mr. Joseph Edwards, a native of Merthyr.——The Albert memorial statue for Dublin has been entrusted by the committee to Mr. Foley. ——A monument to the late Lord Massereene and Ferrard is at present in the studio of Mr. J. R. Kirk, Dublin. It is about to be erected in the parish church of Antrim. The size is 14 ft. in height and 8 ft. in width, and the character of the whole structure Lombardo-Venetian. The principal feature is the full-length figure, representing the deceased, which lies in a recumbent position, draped in the robes of a Knight of St. Patrick, with the collar and badge of the Order. The statue is surmounted by carved canopies, on which are numerous finials, small statues, &c. The figure is life-size.

THE WEST-END PARKS.

We can only judge of things by comparison; and in this way the parks at the west end of the metropolis even now do not show favourably, when we think of the noble examples of landscape gardening which are to be met with in many parts of England. We need, indeed, only go to the grounds of the Crystal Palace, to see how, under energetic, skilful, and tasteful management, a space can be made to assume an aspect of fairy-like beauty. Nearer at hand, at the Victoria Park, we may see how great a change can be wrought in a few years by proper care and judgment. In this park, the display of flowers in their various seasons is delightful to the eye; and in all directions the once flat and unpicturesque site gives indications of what may be expected in forthcoming years. The young trees, skilfully grouped, both foil and harmonize in form and colour, and are each year increasing in size and strength; and there is every indication that we shall have here in due course of time stately trees, forming little groves amid the shrubs and flowers; and all this is done at no great cost.

In some of the suburban cemeteries, in the most unfavourable soil, the success of the gardener is extraordinary. Look, for instance, at Ilford; but in St. James's Park, Hyde Park, Kensington Gardens, and the Regent's Park, a timid policy seems to prevail. Nature has furnished fine trees and other natural advantages; but each storm that blows destroys the decayed branches of the trees. Even the great trees are sometimes taken up by the roots; and those who remember Kensington Gardens, St. James's and the Hyde Parks, a quarter of a century ago, believe that the old trees, before many years have gone by, will have lost the power of throwing forth their greenery, and then those grounds will be dependent on other means for their beauty; and it seems doubtful if the trees which have in parts been planted in with mathematical precision will ever arrive at perfection, or even if they do, will then present an appearance which will be in any way commanding as points of the landscape. It seems to us that the trees that have been planted in recent years show want of attention to grouping, with a view towards general effect. As regards Hyde Park, a large portion must be kept plain for military displays and other public purposes; but there is no reason why the margin of the surrounding carriageway should not be decked with flowers in a far more effective way than they are at present. Mr. Cowper has done a good deal, but might do more, if he were braver.

In connexion with our metropolitan parks there is a want of distinctive features. Is it impossible, by means of a reasonable expenditure, to procure extensive and shady avenues similar to those at Bushy, Hadfield, and elsewhere? Still, in the Regent's Park, the trees at each side of the long walks seem to give promise for the years to come. Similar beginnings should be made elsewhere, and no time should be lost, for those things are slow in attaining perfection. Our metropolitan parks greatly require a combination of architecture and sculpture with the other features. Terraces might be planned at various points with good effect, and in association with them fountains and flower-beds, where the various trees might be shown in large but shapely masses. It used to be said that the public were not to be trusted with such things; that opinion, however, is, now one of the exploded ideas of the past, and too much pains cannot be taken to render the parks elegant places of resort and recreation. What is wanted is a good plan for the future, laid down by a competent authority; and this should be adhered to, and steadily carried out.

COMPETITIONS.

The Sir Tatton Sykes Memorial Competition.—Competitors are complaining that they have heard nothing yet of the decision of the committee.

Chapel and Schools, at Pembroke Dock.—Sir: In consequence of an advertisement which appeared in the *Builder*, on the 22nd of October, I took some trouble to obtain the particulars of a new chapel and schools, to be built at Pembroke Dock. I find that the committee do not intend to employ any architect, and only offer the premium of 25*l*. for drawings, specifications, details, and perspective view, *provided* the design is approved of; which, considering that for the sum of 2,000*l*. a large chapel is to be built, in the Byzantine or Gothic style, to seat 1,200 persons, and also a school-room under, 90 ft. by 60 ft., and 13 ft. high, does not seem very likely, particularly as walling stone is to be brought in its rough state on the ground for 5s. per ton.

One who would have competed.

CISTERNS AND PIPES FOR PURE WATER.

A practical plumber, J. Cutler, comments on the known evil resulting in many cases from the retention of water in lead cisterns, and allowing it to run through lead pipes, and urges as a remedy the provision of glass cisterns and glass pipes for the purpose. As a simple mode of arranging this, he says,—"Make a good strong wood cistern, and line it with common sheet-glass, as common as it can be made; say 26 oz. or 32 oz. to the foot; putting bars or fillets of glass, half an inch square, on the corners, and up the angles with shellac, the same as is now used in putting glass letters on windows, or fillets of mastic. I have no doubt but our scientific and chemical men could soon find something that would properly secure the joints in this way. I would suggest that green baize, or some soft material might be put between the glass and cistern. This being done, care should be taken with the pipe supplying the cistern from the main, that when the water is turned off, the pipe should empty itself, to prevent its freezing and stopping the water coming in next day."

CISTERNS AND DRAINS.

With reference to a letter (p. 176, *ante*) as to the present system of taking the overflow or waste pipe into the trap or drain, I think this system is highly injurious to health. I have often noticed a thick scum on the surface of the water, produced by the foul air from the waste-pipe; but I think bending the waste-pipe into a syphon would be rather difficult in most cases, because the generality are what is termed trumpet waste-pipes,—that is, 3 in. or 4 in. in diameter at the top, and reduced to 1 in. at the bottom; and if it were not bent exactly, or placed in its proper position, it would leak: consequently, in a few hours, the cistern would be empty. [Moreover, the syphon itself would empty the cistern.] Now, I think that the most simple remedy would be to solder an ordinary bell-trap, according to size, into the top of the trumpet waste-pipe. The additional weight would keep it firm, be easy to remove, and answer the purpose in every respect by regulating the ball-tap so as to keep it always charged.

W. B.

ON THE REPORTS OF THE PROCEEDINGS OF THE ROYAL INSTITUTE OF BRITISH ARCHITECTS.

Sir,—Permit me, through you, to congratulate the Royal Institute of British Architects on the report of the president's opening address appearing in your columns. I might congratulate the whole profession also, as well as the reading public, that such highly-important advice, and such valuable materials for thought and reflection, have not been consigned to oblivion,—*preserved*, like memorials of past time, in the pages only of the Institute's printed "Proceedings."

I hope this report will prove to be the harbinger of a better, a wiser, a more liberal and useful course than that which the Institute has lately adopted, of hiding its light under a bushel, so to speak, and not permitting its precious papers and communications to appear abroad.

How the new system may have affected the sale of the printed "Proceedings," published by the Institute, I do not know; but I should expect that it cannot permanently have increased the profits, while it certainly has diminished the usefulness of the Institute to the whole profession, and dimmed its lustre in the eyes of a discerning public. It is desirable for all societies, whether for the advancement of science or the promotion of art, that an early notice of their proceedings should be given to the public. This will be found most profitable in the end, as it assuredly is most proper at the time. Besides other advantages, it diffuses a knowledge of those proceedings among persons who would otherwise never hear of them, and may increase the demand for the official publication, with illustrations, among others than those who are immediately interested in them. There is always a multitude of *outsiders* who can thus gather up the crumbs that fall from the well-furnished table in Conduit-street, and transform them into vital nouriture to their own and their employers' advantage. The professional and public loss sustained by the reports having no longer been permitted to appear, will be brought home to the convictions of all, by reflecting on the loss which would have been incurred had not the present accomplished president's admirable address have gone forth as it has done. *Outsiders* would have known nothing about it; the reading public would never have heard of it; the sound advice and the precious fruits of a life of professional exertion and of philosophical inquiry into the principles and influences of art would have been almost utterly lost; they would have found their way into the printed "Proceedings," fossilized in its pages for some future generations; but their living impressions would have been effaced.

H. C. Barlow.

Sir,—Every one who takes any real interest in the advancement of art must be thankful to you for the remonstrances which you from time to time address to the Institute, on the question of the publication and proper reporting of their transactions. It is sad to see such narrow-minded counsels still prevail with the governing body. In any society, wise men are often in a minority. It is hard to believe that all those whose opinion is really worth having concur in the present exclusive method of proceeding.

What on earth is the object of the Institute, if it be not to promote to the utmost the improvement of architecture? Surely this object, which is professed loudly enough in every set speech which is made at the Conduit-street meetings, and in every paper read anywhere on the subject, ought to be more the care and anxiety of its

members than the mere selfish desire to protect the Institute's copyright.

The Royal Institute of British Architects is not a "protection society," but a society for the advancement of architecture and its kindred arts.

It is not a "mutual improvement" or "benefit society," but a public institution; and the public has a right to know what it is about.

Every society which *really* wishes to do good in any way, courts publicity as the principal and almost only means of effecting the object it professes.

The Institute was not founded only for the good of its members, but for the good of the public. I would ask—Is the public or are members benefited by the present regulations?

How are outsiders to know the advantages of the Institute if they have no opportunity of ascertaining what goes on at its meetings?

Is a disquisition upon law or social science less valuable ever after, in a separate form, because it has been first published in a newspaper?

Surely it is by means of the publicity thus given to it, and the comments made upon it in columns which are in every one's hands, that attention is drawn to the worth of an essay and the talents of its author.

Of course, this is quite setting aside the question, whether some of the Institute papers are worth publishing at all. Some are undoubtedly very good; but some are as certainly far behind what should emanate from those who essay to instruct the profession.

Publicity would in time raise the tone of the papers, and beget more care in their preparation.

At all events, if people are able to ascertain from the public press that the papers and discussions are really good, the Institute need not fear but that there will be plenty of opportunity of selling the official copies of the Transactions.

I enclose my card, and am, AN ASSOCIATE.

THINGS TO BE DONE.

SIR,—I am in despair. When are the Houses of Parliament to be finished? When is the Nelson Column to be finished? When is the first contract for the Thames Embankment to be completed? When is the third contract (Temple to Blackfriars) of the Thames Embankment to be completed? When is the Southern Embankment (Westminster to Vauxhall) to be completed? When is New Earl-street to be completed? When is the Charing-cross Hotel to be completed? When are the new London railways to be completed? When is Victoria-street to be completed? When is the pulling down of Old Blackfriars Bridge to be completed? When are the New Law Courts to be completed? And, last, when are the two houses at the foot of Big Ben Tower—one called Fendall's Hotel—which have been pulling down the last two months, to be completely pulled down? Surely some new Guido Fawkes must have hired them to repeat history! You say in your paper that a body of 12,000 workmen were concentrated on the "last bit" of the Northern of Spain Railway; and you say that on the first contract of the Thames Embankment (Westminster to Waterloo), the total of which is 520,000*l.*, 31,000*l.* was all the "work done" up to the last weekly meeting of the Metropolitan Board. The Act for the said Thames Embankment now lying before me was passed in July, 1862. Wake up these rapid workers,—pray, Sir, wake them up!

ONE WHO LIKES TO REAP AS WELL AS SOW.

*** Our correspondent is a little unreasonable in one or two of his queries, but in other respects we echo his inquiry, and ask, "When?"

STAINED GLASS WINDOWS FOR WHITEHALL.

Sir,—Having lately read much about the windows of Glasgow Cathedral being filled with stained glass, and also how much they were admired on a recent occasion, by the Right Hon. W. Cowper, Her Majesty's First Commissioner of Works, it occurred to me to ask, would it not be well, if we had a little more of this kind of decoration in our London churches, especially in Her Majesty's Chapel Royal? It would be well, therefore, to draw that gentleman's attention (through your columns) to the great want of a stained glass window over the altar of the Chapel Royal, at Whitehall: as the altar window is the only one that directly meets the eye on entering the chapel, it would be a vast improvement over the present plain one, and it would also accord better with the gorgeous gilded ceiling, and valuable paintings by Sir Peter Paul Rubens, which command so much attention and admiration from foreigners as well as from English people. It is to be hoped, therefore, that this beautiful chapel will not be long without its stained glass altar window. In fact, such a building as that should not have *any plain* windows at all, but they should all be enriched to a certain degree, and the woodwork screens should be removed from the windows in the lower part of the chapel (as in former times), as they exclude valuable light, and give the chapel a gloomy and melancholy appearance. This is easily effected, as the wooden screens are only temporary. It is a great pity that anything should disfigure such a fine building, which was erected by Inigo Jones for the Royal Banqueting Hall; but the former Chapel Royal, being destroyed in the fire that consumed the other parts of the Palace of Whitehall, this building (being the only one saved) was converted into a Chapel Royal in the year 1717, and has been used as such to the present time. Such a chapel as this demands that it should have windows that would correspond with the general beauty of the other parts of its decorations.

A. B. C.

THE PATENT STONE BRICKS.

WITH reference to the notice headed "Patent Stone Bricks" which you have been good enough to insert in the *Builder*, allow us to say, that the whole of the bricks which were exhibited at the last meeting of the South Wales Institute of Engineers were made of sand and lime, with the exception of three, which, instead of sand, contained blast furnace scoriæ (also called slags or cinders), treated according to Mr. Parry's patent process, and subsequently ground to powder, an operation which can be effected without the least difficulty.

Where sand is used in the manufacture of these bricks—and so far we have employed sand almost exclusively, as being the cheapest material—it is simply screened or sifted.

In many localities the patent stone bricks could, no doubt, be produced at the *cost* price of 12s. per 1,000; and at some of the iron works at a considerably cheaper rate, by using the powdered slag and white lime; but they could not be so sold with any profit. The cost of the patent stone bricks depends essentially upon the prices at which sand (or its equivalents) and lime can be obtained, and upon the qualities of these materials. The price at which they are sold at Newport is 24s. per 1,000.

BODMER, BROS.

OUR CROOKED CHIMNEYS.

SIR,—I am one of those unfortunate persons who have had to administer the law under the consciousness that they may have been guilty in past days of precisely the same offence; or, if not exactly so, are actually, while punishing one class of offenders, conscious that they are conniving (to say the least) at breaches of other portions of our statute law.

It is quite unnecessary for the public to know anything more than that I live in a large house, with a most commanding exterior, and chimneys arranged for architectural beauty in fluted or carved Bath stone; but I very much fear (though I have no *legal* knowledge of the fact) that they are pronounced by our country sweeps impossible to be properly cleaned without the aid of climbing boys. What am I to do?

AN OLD "J. P." AND "D. L."

*** The insertion of a soot-door here and there in the right position might probably enable the machine to work efficiently.

RATING RAILWAYS.

The Midland Railway Company v. *The Overseers of the Parish of Beageworth, Gloucestershire.*—This was a question (Court of Queen's Bench, Westminster), as to the validity of a poor-rate upon a portion of the Great Western Railway within the parish, over which the Midland had by special agreement "running powers;" and the point was whether in such a case the company having power to run trains on the line of another company can be deemed to be in beneficial occupation, so as to be rateable for relief of the poor. There is a special agreement between the two companies under which each has power to run trains over the line of the other; each company has exclusive powers, as proprietors, over its own line. The parish authorities had rated the Midland Company in respect of the profits of that portion of the Great Western line which they used, and which was within the parish. The Midland Company appealed, and hence the present appeal. The Court decided in favour of the Midland Railway Company and against the rate, on the ground that they had no occupation of the line which was rateable.

AGREEMENT TO BUILD ON A LEASE.

Cubitt v. *Smith.*—This was a suit, in the Vice-Chancellor's Court, for the specific performance of a contract, whereby plaintiffs demised to defendant a piece of land on the Pimlico-road and St. George's-road, wih a house to be erected thereon, for sixty-six years, at a rent of 70*l.* *per annum*; and the defendant agreed that he would, within eighteen months from the date of the agreement, build ahouse on the land, of the value of 700*l.* at the least, of not less than three stories high above the basement, of a character corresponding with the house already built; or according to an elevation, section, plan, and specification to be previously approved in writing by the plaintiffs; and "according to the Act or Acts of Parliament for the time being in force for the regulation of buildings in and near the metropolis." Plans of the proposed house were prepared by defendant and approved by plaintiffs. It was afterwards ascertained that the Board of Works objected to the completion of the house according to the original elevation, and required the frontage towards the Pimlico-road to be put back 3 ft., so as to be on a level with that of the adjoining houses. The defendant, who had expended 400*l.* on the house, then ceased to build on the land, and the house was now unfinished. Hence the present suit.

The Judge was of opinion that the contract was perfectly clear in its terms, and one which this Court would enforce. It was plain that the house was agreed to be built according to the provisions of the Act of Parliament regulating the building of houses in the metropolis; and that agreement and the plans were equally binding on both plaintiffs and defendant. By some inadvertence on the part of both parties, the site was marked out in the plans in such a way as to contravene the rules of the Board of Works, but there was nothing in the case to show that the plans could not be in that respect modified. The defendant was bound to go on with the house accordingly, and a decree was given for specific performance of the agreement, with costs.

LABOURERS' COTTAGES.—The Carlow Agricultural Society has awarded the Earl of Bessborough the Royal Agricultural Society's first-class medal for the improvements which he has effected in labourers' cottages. Lord Bessborough, it is said, has built an extremely comfortable class of houses for the tenantry on his extensive property, and has "shown the Irish proprietors how the labouring classes may be comfortably housed for thirty shillings a year."

METROPOLITAN BOARD OF WORKS.

LAST week, a discussion took place in reference to

The Improvement of Park Lane.

The Chairman explained that there were two proposals, one for widening Park-lane, which would involve a very great expense, and the other to open Hamilton-place.

Mr. Tite, M.P., said the opening of Hamilton-place could be carried out at a small expense, but it would require the sanction of Parliament. He moved that the Streets Committee be authorised to give the requisite preliminary notice for next session of Parliament. The motion was carried by twenty-two members to eight.

The Thames Embankment.

The report of the Thames Embankment Committee was read, in which it was stated, that having regard to the report of Messrs. Hawkshaw & Harrison, the Committee were of opinion that the immediate backing of the Embankment wall should be of material wholly obtained from the land; and that the remainder of the filling-in should be supplied from the land and from the bed of the river, in such proportions as, in the judgment of the engineer, should be best suited to form a solid embankment. That they considered the filling-in would be best carried out with material wholly obtained from the land, but that, having regard to the expediency of deepening the river where it was contracted by the Board's works, they recommend the taking of a portion of the material from the river, so far as the engineer might see that such can be practically done.

It was resolved, after some discussion, that the recommendation of the committee be adopted, and that the order of the Board of the 23rd of September, 1864, prohibiting the contractors from receiving any soil for filling-in behind the embankment other than that supplied by the Thames Conservancy Board, be rescinded.

"A heavily-taxed Ratepayer," writing on the embankment question, says,—"Mr. Hawkshaw is the engineer to the underground railway, extending from Charing Cross to the north of London, out of which many millions of tons of rubbish will have to be excavated, and of course removed.

Now, I desire to ask Mr. Hawkshaw—1st. Could he possibly obtain in London a more convenient shoot for this rubbish than into the Thames along the line of the embankment? 2. Would not his company save at least 10,000*l.* out of the sum they will otherwise have to pay for removing the rubbish to the outskirts of London. . . . If the Thames Embankment be formed of the land rubbish heretofore used it will not solidify for years, and will consequently be a constant source of expense for repairs; but, if formed of sand and gravel from the river, assuming of course that the material be not laid on the ground until the coffer-dam has been completed and the river excluded, it must of necessity at once form into a solid compact mass. It should also be recollected that it is for this sand and gravel the ratepayers of the metropolis have contracted and are paying. . . . Large sums of money, amounting to many thousands of pounds, will now be paid by parties for permission to shoot rubbish into the river to the injury of the stream, and much of which will afterwards have to be dredged out again by the Thames Conservators. Who, then, are the parties to be paid for this permission? Is it Messrs. Furness & Ritson, the contractors, or the Metropolitan Board of Works on behalf of the ratepayers, or the Thames Conservators?"

COMPENSATION CASES.

Ex parte Piper and the Hammersmith Railway Company.—This case raises a question of importance with reference to compensation by railway companies for premises taken by them, the precise point being as to compensation for vibration caused by the running of railway trains. There was a viaduct constructed by the company, on which their trains would run, close to the premises of the applicant, Mr. Piper, which were, he alleged, "injuriously affected" by it in various ways, and for this (no part of the premises being actually taken) he claimed compensation. When the line was opened, and the trains began to run, there was a sensible vibration caused to the house, and this was a main item in the claim. The jury gave compensation for this item of the claim, and hence the present question. On the part of the company it was contended that the right to compensation was only for injury caused by the "execution of the works;" whereas this was vibration caused by the running of the trains, which was allowed by the Act of Parliament authorising the line. Mr. Justice Crompton observed, that so was the construction of the line, yet compensation was allowed in respect of it. You can claim compensation for vibration caused by the running of trains through a tunnel under a house; and how does it matter in what manner the vibration is caused, by going under the house, or going by the side of it? The Lord Chief Justice: It may lead to a house going to pieces some years earlier than it otherwise would. And there may be such an amount of discomfort caused by vibration as practically to render the house uninhabitable, depriving the inmates of all the refreshment of repose. I tried a case at the last sittings here, which is very much in point. It was an action for setting up a steam-engine for grinding coffee close to the plaintiff's premises, and part of the complaint was the vibration; and, although the injury was disputed, no one doubted that it was a ground of action. Mr. Karslake pressed that the Lands Clauses Act only allowed compensa-

tion for the injury caused by the "execution of the works," and this was an injury caused by their use, not their execution. The Court said the point was important, and must be discussed and determined, and, therefore, the learned counsel might have a rule *nisi*.

Ex parte Sinnock and the Metropolitan Railway Company.—In this case the claimant had an agreement for a lease of the premises for five years, but had no lease, and the company deemed the case to fall within the rule as to tenancies from year to year, and therefore refused to issue their warrant for a jury. Counsel urged that the claimant had an equitable interest for the whole of the term. The Court granted a rule.

Chew v. *The Metropolitan Railway Company.—Lord Mayor's Court.*—The claimant in this case is a livery-stable keeper, who formerly carried on business in Little Moorfields. The premises have now been taken down for the Finsbury Extension of the Metropolitan Railway. Mr. Bovill, for the claimant, said, Mr. Chew had tried in vain to obtain premises of a similar character. One part of his trade was completely destroyed by this removal, and to be thrown out of business at his (claimant's) time of life appeared to the learned counsel to be a very great hardship. Mr. Chew kept no regular set of books, and therefore he was unable to say exactly what his annual profits were. The books that had been kept exhibited an annual profit of only 170*l.* a year. Of course there must be some mistake about that. During the last five months of his trading, books had been completely kept. The profits for these five months were 143*l.* 8s. 5d., or at the rate of 344*l.* per annum. As regarded the trade the jury must say how much the claimant was entitled to under that head. The learned counsel then summed up the various items of claim, which he said he thought would amount to somewhere between 3,500*l.* and 4,000*l.*

Mr. E. Fox (of Fox & Bousfield) valued the claim at 2,249*l.* exclusive of fixtures, loss of trade, and loss on stock.

Other evidence having been adduced as to the value of the premises and the loss that must ensue to the claimant, the counsel on either side held a brief consultation, which resulted in a verdict being given by consent for 2,000*l.* A model of the premises, made by Mr. Jolley, was shown in the court.

Lloyd v. *The Metropolitan Railway Company.*—At the Sheriff's Court, Red Lion-square, this case occupied some hours. The property was a freehold house in Charter House-square, which was built in 1708, in the reign of Queen Anne, when Charter House-square was a "fashionable" locality, and numbered several lords as residents. The house was leased in 1856 at 70*l.*, and was now worth 135*l.* a year. Property had gone up in the City, and was increasing. For the compulsory sale 15 per cent. was demanded. That sum, on the part of the company, was called "outrageous," and it was alleged that property had reached its full value in the City, and must go down. It was contended that the price, 2,500*l.*, was most extravagant. In consequence of Mr. Sheriff Dakin being one of the directors of the company, Mr. Humphreys, the Middlesex coroner, presided before a special jury, and placed the case before them. The jury retired, and on their return assessed the compensation at 2,450*l.*

IRELAND.

Dublin.—There is at present a cry out for a new theatre for this city. Last year Mr. Boucicault and a few others made some overtures, with this purpose in view. It seems to have fallen to the ground; but now that Mr. Boucicault has again visited Dublin, where he has produced an original piece, many are giving expressions in the newspapers and otherwise to their views, concerning the insufficiency of the present theatres, two in number,—too few, and in the matter of necessary appliances far behind the age. There is a great want of one,—not, indeed, so large as the Theatre Royal, the better of the two, but of the shape and with the arrangements of the Haymarket, in London. It is to be hoped that something good will result from the present agitation of the subject. One writer uses language rather strong, but on the whole not groundless, and describes the theatres of this city as a disgrace to civilization. He also makes the remark that large theatres are a mistake.

St. Andrew's New Church, Dublin.—The church which gives its name to the wealthiest and most central parish of this city, is now progressing satisfactorily. There has been some delay, pending alterations on the original design, and the prospect of funds sufficient to carry them out in their integrity. A Dublin gentleman had, about a year since, anonymously offered a sum of 1,000*l.* on condition that the committee should have the sum of 1,600*l.* collected on or before the 1st of October, 1864, which would make up the balance of the sum necessary to carry out the design of the Messrs. Lanyon, Lynn, & Lanyon, amounting in all to 12,600*l.* Notwithstanding the efforts of the committee and their clerical officers, not half the required amount has been obtained, and the offered sum has been withheld; the church will in consequence have to be left in an unfinished state, divested of that which in the design, as exhibited, attracted the attention of all who have seen it, namely, its tower and cloister porch. Although the architects already named have designed the church, and are carrying it out, they are obliged to act under the supervision of the Irish Ecclesiastical Board and their professional officers, because a certain limited proportion of the cost is to be defrayed by them. The arrangement is one that does not give universal satisfaction, inasmuch as it is doubted whether the officer of the above-mentioned commissioners is necessarily qualified to direct or control an architect whose education and studies are entirely directed to his own profession.

Eyrecourt, county Galway. — A new church (R.C.), is just completed here: the cost is about 1,800*l.* Its proportions are,—Nave, 85 ft. long, 24 ft. wide; sanctuary or chancel, 22 ft. by 20 ft.; two transepts, each 30 ft. by 20 ft.; a chapel, 15 ft. square, on either side of chancel; and a sacristy. The style is Early English; the chancel window and those of transepts will be of large dimensions, and be ornamented with tracery. The roof timbers will be exposed, wrought, stained, and varnished. To the above are added a bell-tower of moderate height, a porch, and a baptistery. The stone of the locality has been used.

PROVINCIAL NEWS.

Wanstead.—A large hall, designed by Mr. T. H. Lewis, has recently been commenced for the use of the children of the Orphan Asylum, when debarred from open-air exercise, and for public examinations, lectures, &c. Lady Morrison, who provides the hall, laid the foundation stone of the building.

Glastonbury.—A new assembly-room has been erected here. The new hall is 55 ft. long, 35 ft. broad, and 21 ft. high, and is something after the shape of the old hall at Westminster. It was built for 700*l.*, by Mr. Merrick, of the town.

Leek.—The opening of the Temperance Hall, Union-street, has taken place. From 1833 until the erection of the edifice in Russell-street, it has been the chapel of the Congregationalists, from whom it has been purchased by the friends of the Leek temperance movement for 600*l.* The internal arrangements have been somewhat altered, at a cost of about 100*l.* The body of the hall has been fitted up with backed forms, and there is a new orchestra at the upper end.

Burntwood (*Staffordshire*).—The new lunatic asylum is in an advanced state of progress. It occupies a site close to the village of Burntwood, and three miles from Lichfield. The main building for the reception of patients extends westward from the dining-hall for 184 ft., having at its opposite extremity a wing at right angles to the front, with a front elevation of 37 ft. 6 in., and giving a western front of 129 ft. The whole length of the present south front is 286 ft.; but in addition to this there is a projection in the centre of the western front in an octagonal form. In the centre of the main building, between the dining-hall and the western wing, is another projection to the south front, and at this point the building runs back for some distance, and contains bath-rooms, closets, &c., whilst the north-western portion is devoted to idiots, who have a separate airing-ground. The general arrangement of the building consists of a series of large day-rooms and dormitories for the patients, all with a south or west aspect. There are on the ground-floor six day-rooms, varying from 37 ft. long and 17 ft. wide to 20 ft. long and 16 ft. wide; and five dormitories, from 28 ft. 6 in. to 16 ft. 6 in. long, and 16 ft. wide; whilst on the first floor there are four large day-rooms and a number of dormitories. All these are 12 ft. 6 in. high, and the dormitories in the attic floor, the ceilings of which are perfectly flat, and in no degree taken out of the roof—are only a few inches lower. The land and timber cost 6,963*l.*; the builder's contract was 17,555*l.*, with 325*l.* for well, 284*l.* for tank, and 2,037*l.* for engineering works, &c. The other expenses to prepare the building for the reception of patients would raise the cost to about 35,000*l.*; and if the eastern side were built—tendered for to the amount of 10,500*l.*—the whole building would cost 45,500*l.* The architect is Mr. Moffatt, of Edinburgh; and the contractor, Mr. Horsman, of Wolverhampton. The building is being erected under the superintendence of Mr. J. T. Rowland, as clerk of works.

Audley End.—The present noble owner of Audley End (Charles Lord Braybrooke), not having yet taken up his residence there, determined that during his absence the palatial seat of his ancestors should be substantially restored and improved; and the works, which have been for many months in progress, are now fast proceeding to completion. The commencement of the renovations was at the north end of the chapel, the walls of which were taken down to the plinth, and wherever by time the walls had become defective they were restored with Ketton stone. The restorations extend over the greater part of the buildings, and what is called the "bucket" hall was entirely repaired. The glass of the chapel window, of Gothic proportions, has been preserved, but not used in these alterations; and all the mullions of the windows of each front and wing have been restored and filled in with plate glass. The porticoes appear fresh, and in their original state, and the front of the hall has been restored. Richard Aldworth, third Lord Braybrooke, and father of the late and present lords, laid out 70,000*l.* in restorations and renovations about thirty-eight years ago.

Bacup (*Lancashire*).—The local board have decided upon the erection of a commodious market house. The estimated cost is 5,000*l.* The plans have been prepared by Mr. Joseph Brierley, of Blackburn.

Manchester.—The ceremony of dedicating the new Freemasons' Hall, Cooper-street, the foundation stone of which was laid in July last year, has taken place with the usual Masonic ceremonial. The building has three entrances, the principal one being for the exclusive use of Masons, when meeting for craft purposes. The lodge and banqueting-rooms are similar in dimensions, each measuring 56 ft. by 28 ft., the former being 26 ft. in height, with a Decorated semicircular ceiling.

CHURCH-BUILDING NEWS.

Elmswell (*Suffolk*).—The parish church, after undergoing a thorough renovation, was re-opened with ceremony on the 28th ult. The whole fabric is interesting, and especially the chancel, which is of fourteenth century work. A new roof has been placed upon the walls, the entire stonework carefully repaired, a vestry added upon the north side, a low stone screen placed at chancel arch, oak carved stalls and subcellæ, tile floor, reredos covering the lower part of the east wall, and a painted east window, by Lavers & Barraud, with other accessories, complete the work. The works have been carried out by Mr. Smith, builder, of Rattlesden, at the expense of the rector and his family. A spacious rectory and schools are rising near the church, the whole being carried out from the designs of Mr. Withers, architect.

Snape (*Suffolk*).—The church of Snape has been re-opened. The recent alterations have been confined to the interior. Benches of stained deal take the place of the pews: the floor of the church has been raised; the passage down the centre paved with bricks in the place of the broken flag-stones formerly there, and there have been other minor alterations. In several cases new stone mullions have been substituted for wooden ones in the windows, and one new stone window has been put in the north wall in the place of a wooden one: this is in the Early English style. The west gallery, in which the school children sit, has been considerably reduced, so that it no longer projects in front of the windows, and that part of the church is consequently lighter. Whilst the alterations at the east end were going on a piscina was found in the south wall, and also the remains of a staircase in the thickness of the north wall leading to the loft above. The whole building has had a fresh coat of plaster and whitewash, and a wooden lining of the height of the benches, and stained in uniformity with them, runs round the church. All the alterations have been carried out by Mr. Nunn, of Friston: they were planned by the vicar with Mr. Nunn's assistance. Mr. Thurlow, of Saxmundham, had the stone-work, and Mr. J. Beard, Saxmundham, stained the wood-work. The total cost of the alterations exceeds 250*l.*, a large part of which is given by General Vyse, the patron of the living, the parishioners raising another part.

West Coker.—The parish church having been rebuilt, with the exception of the tower, has been opened for Divine service. The present alterations may be described as consisting of rebuilding the north and south arcades; and in this case it is an exact rebuilding of the old, with an addition of one bay westwards on the north side, because the old aisle did not extend to the same length as the nave; taking down the north aisle and enlarging the same; rebuilding the chancel arch; lengthening the chancel in order some-

what to overcome the awkward appearance of three gables in a line; and opening the side aisles to the chancel with proper arcades instead of the square openings with lintels that were there before. The Portman aisle has simply been repaired and seated, and a larger arch made into the north aisle. The nineteenth century south aisle has undergone considerable modification. The old porch has been re-erected at the side of this aisle; and as far as funds would allow the whole has been remodelled to the same date and character as the porch, new three-light Perpendicular windows having been inserted in the south side and west end. The tower arch has been enlarged, and a screen placed in the archway, and a new west window has been inserted, under which will, probably, soon be placed a door of similar character. New open timber single framed roofs have been put to the north aisle and chancel, and the chancel roof is divided by curved ribs into three bays. The plastering between the rafters of the chancel roof has been stencilled. This and the emblazoning has been done by Mr. Stansell, of Taunton. An open timber roof has likewise been put to the nave, of near the same date as the old one, though somewhat different in character. The church throughout is seated with plain open benches, and in the nave the old oak ones have been re-used. The chancel is fitted up with oak stalls, and paved with encaustic tiles in patterns, supplied by Messrs. Maw & Co. The stained glass in the east window has been given by the rector, and in the west window by Mrs. Penny. The four windows in the south are likewise to be filled with stained glass. They are respectively given by Mr. Robert Moore, Mr. Israel Rendall, Mr. William Podger, and the working men of the parish. They will be by Messrs. O'Connor. The whole of the works have been executed from the designs and under the superintendence of Mr. M. Allen, of Crewkerne, architect, the contractor for the same being Mr. R. Bartlett, of West Coker.

Brooke (*Isle of Wight*).—The old church of St. Mary the Virgin, Brooke, was destroyed by fire in the winter of 1862, with the exception of the tower. The new church is built almost entirely on the old foundations, and consists of nave, chancel, and north transept, arranged similarly to that of St. Peter's, Vauxhall, with a central column, one-fourth of which is screened off to form a vestry. The church is built of the native rubble with dressings of green Niton stone. The chancel is lined with alternating courses of green stone, chalk, and red iron-stone. All the roofs are open, of red deal. All the windows are filled with grisaille glass, by Lavers & Barraud, that over the altar containing the Crucifixion. The nave is seated with open benches of elm, and the chancel stalled in oak.

Whitbourne.—The work of restoration and enlargement of the church here is about to be commenced forthwith, funds almost sufficient for the purpose having been raised, and plans furnished by Mr. Perkins, architect to the Dean and Chapter of Worcester. The western gallery will be swept away altogether, and in lieu thereof a new north aisle is to be added, which will accommodate some 100 persons, and a new vestry will be built. New open seats are to be furnished for the nave, and new stalls for the chancel, with altar-rails and other necessary furniture, including a reading-desk and stone pulpit. It is hoped also to raise funds sufficient to complete the work by the external repairs that are necessary, and also to provide a warming apparatus.

Worcester.—A parish meeting, convened by the committee recently appointed to consider whether any and what works of restoration and improvement are desirable to be carried out on St. Nicholas's parish church, has been held. The committee have consulted Mr. W. J. Hopkins, of this city, architect, and an engraved plan, showing the alterations recommended by Mr. Hopkins, was put in the hands of the parishioners, together with his descriptive report, in which he says that the present state of the church is very unsatisfactory; for, as well as being greatly in need of general reparation, it is exclusive and unecclesiastical as regards its arrangements, is badly lighted, badly ventilated, and badly warmed.——The Shrub Hill Church is now gradually rising. The timber-work of the roof of the lately-destroyed Guesten Hall appears over the nave, and will be lighted up with a rose window in the western wall. This window is a design by the architect. The rose, or wheel, has radiating mullions terminating in cinquefoils, and in the centre is a triple tau, as an emblem of the Trinity. The window being a Pointed one, there is tracery above the rose, entwining itself in two triangles, having flowing instead of straight sides; and in the spandrels formed between this tracery and the rose are smaller circles cusped. A double doorway underneath this west window forms the principal entrance: it has a central shaft and trefoil heads to the arches, the main arch being of three orders, the mouldings of which are distributed upon as many recessed shafts. Some of the north windows of the nave are copies of those in the late Guesten Hall. Three acutely-pointed arches divide the nave from the south aisle, which has a lean-to roof. There are north and south transepts, with a chapel or recess at the east end of each, one of which is for the organ and vestry, and the other for school children. The chancel will be of the same lofty proportions as the nave, and the apsidal east end has five windows in the apse, each of three lights, and Decorated tracery. At present the chancel is not so far advanced as the nave, but the work is up to the centre of the windows. Mr. Hopkins is the architect, and Mr. Nelson the builder.

Nempnett (*Somerset*).—The parish church of Nempnett has been re-opened, after having undergone a restoration. The floors have in part been laid with Minton's tiles. The seating is all open, with bench ends, designed from a fragment found under the modern floor. The windows have been refilled with tracery made out from broken fragments built into modern walls. The pulpit is of oak—designed to harmonise with the fittings. All whitewash has been removed, and the original faces of stonework brought out without scraping or cutting. The plaster ceiling is taken away, and the decayed timber of the roofing removed and renewed, and the bosses etched with gold. The old carvings under the trusses were found on removing the lime to retain the original colouring. The chancel, which is very plain, has been fitted up with stalls, and the ceiling and walls tinted. The work has been executed from the designs of Messrs. Popes & Bindon, by Mr. Morris, of Bristol, assisted by his sub-contractors, Mr. Wilkins & Mr. Cowlin.

Kirk Sandall (*Doncaster*). — St. Oswald's Church, Kirk Sandall, has been reopened. Coats of plaster and limewash have been removed, and the walls are presented to the view. Mr. Teale, of Doncaster, was the architect employed.

Bradford.—Holy Trinity Church, the seventh of the ten to be built by the Bradford Churchmen in five years, has been consecrated by the Bishop of Ripon. The church is situate in the midst of a large population at New Leeds, a suburb of Bradford; will afford accommodation for about 600; and is built in the Early Decorated style, from the designs of Mr. Paley, of Lancaster, at a cost of about 3,000*l*.

ACCIDENTS.

In High-street, Birmingham, at a spot where premises were burnt down and excavation was going on, a wall bulged out and fell, covering up two girls, who were bruised but not seriously injured. Other seven persons made their escape just in time. The wall had been "secured," but the foundations had been disturbed.

At Liverpool a terrific gas explosion has taken place in the office of the United Kingdom Telegraph Company. The office is a perfect wreck. Some slight personal injuries have been sustained.

At Maryport the front wall of an old house at the bottom of Old Market Brow, familiarly known as Ben Sanderson's Corner, has fallen. It appeared, for some time past, in a rickety state. Still the occupant, a sailor, continued to remain there; and, although the family were all in bed when the house fell, they sustained not the slightest injury.

At Sheffield lately, while a temperance meeting was being held in some workshops, a large portion of the floor gave way and precipitated about 150 people into the shops beneath. After the first alarm had subsided, it was found that the worst injury sustained was a broken leg.

Near Lymm, at the new bridge in course of erection over the river Mersey, at Warburton; some planks, which do not appear to have been properly secured, slipped from a temporary scaffolding; and a young man was precipitated into the river and drowned.

At a lone farm-house near Murat-le-Quaire (Puy-de-Dome), a farmer, having purchased 15 kilogs. of blasting-powder for quarrying, was so imprudent as to lay it to dry on the floor before the fire, while six persons, composing his family and himself, were in the room. The powder exploded, blowing down the house, and setting fire to the adjoining buildings. All the persons escaped from the ruins, but so severely burned that their recovery is considered hopeless. The house, outbuildings, and corn-stacks, were entirely consumed, and nine cows and twenty sheep perished in the flames.

Books Received.

James Brindley and the early Engineers. By Samuel Smiles. London: John Murray, Albemarle-street. 1864.

The Story of the Life of George Stephenson; including a Memoir of his Son Robert Stephenson. By Samuel Smiles. London: John Murray. 1864.

These little volumes, full of matter, each a distinct work, are reproductions, in a cheaper and more compact form, of parts of Mr. Smiles's larger work, "Lives of the Engineers," of which we gave a full account at the time of its appearance. The present arrangement places the most interesting information contained in it within the reach of a much more numerous body of readers, and will be doubtless taken advantage of to a large extent.

Since the appearance of the first edition of the "Story of the Life of George Stephenson" additional information has been communicated to Mr. Smiles, and incorporated in the present issue. It does not seem to have led the author, however, to lessen the share of merit attributed by him to the Stephensons in respect of the railway and the locomotive, concerning which there continue to be two opinions.

The Life of Brindley, forming a companion volume, includes memoirs of the earlier engineers,—Vermuyden, Sir Hugh Myddelton, and Captain Perry,—of whom in connexion with the Thames dykes we have recently had occasion to speak. The story of the "ineloquent Brindley," one of the most remarkable instances of self-taught genius to be found in the range of biography, is full of teaching, full of encouragement, and is admirably set forth by Mr. Smiles.

Both volumes are illustrated with engravings, and are very attractive and valuable.

VARIORUM.

We must mention, pending the full examination of the book, the publication, by Mr. Murray, of "A new History of Painting in Italy," in two volumes, by J. A. Crowe and G. B. Cavalcaselle, whose work on the Early Flemish Painters we have often taken occasion to refer to. Their new book purports to be drawn up from fresh materials and recent researches in the archives of Italy, as well as from personal inspection of the works of art scattered throughout Europe. The present two volumes are but an instalment of the whole intention, comprising the History of Painting complete to the close of the fourteenth century, and partially so to the end of the fifteenth. Two subsequent volumes will bring up the history to the time when "the tide of the great Revival halts at the full."——"Naudin's Portfolio," edited by Hamilton Hume, is to present the public, monthly, with a collection of photographic portraits and biographical memoirs of men and women who have made themselves celebrated in the various walks of life. No. 1, now before us, comprises a large photograph of "Gadshill," the country seat of Mr. Charles Dickens, with a group on the lawn consisting of Mr. Dickens, Mr. Fechter, Mr. Wilkie Collins, and others. It also contains photographs of Mrs. Henry Wood (the authoress of "East Lynne"), Mr. Tom Taylor, Mr. Benjamin Webster, and Captain Blakeley (inventor of the Blakeley Gun). The idea of giving views of the country seats of individuals in whom the public is interested is a good one; but in this first instance has not been carried out quite so well as might have been the case. The view is all so dark that the members comprising the group can scarcely be recognized.——The *Social Science Review* for the month is devoted to an account of the York Congress of the Social Science Association, and gives a fair *resumé* of the proceedings.——Messrs. Day's reprint of the first folio "Shakspeare" of 1623, by aid of photo-lithography, has now reached Part V.——Mr. Collingridge has issued, as usual, his "City Diary and Almanac" for 1865. A little more space for each day's entry would be an improvement.

Miscellanea.

Society of Arts.—The hundred and eleventh session of this society commenced on Wednesday evening. Mr. William Hawes, chairman of the council delivered the opening address.

The Sliav-Igrine Inscription.—The Rev. J. Graves informs us that his correction at the end of the name cut on the stone (a **C** for a crossed out **D**) imitated ingeniously by our printers (p. 789), was merely a correction (twice occurring) of a mistake of his own in writing: it should stand simply as **C**, but reversed, Conic having so carved it.

The Calcutta School of Art.—This school, which has hitherto been somewhat mismanaged, is about to take a new start, on more strict and intelligible principles, and under the chief direction of a gentleman experienced in the management of Art-schools in England, according to the *Engineers' Journal* of Calcutta, which has a leading article on the defects and abuses that had crept into the school of late years. The French "plaster professor," it is stated, has been removed, and other improvements are being effected. What good has been done is said to be chiefly owing to the assiduity of the head master, Mr. Garrick, since the beginning of 1860.

Primrose-hill Shakspeare Memorial.—At the last meeting of the Executive it was reported that the Council of the Amalgamated Engineers had expressed a willingness to include some notice of the movement in their next quarterly report to the associated branches throughout the United Kingdom and the colonies, and the council would further supplement such notice by commendatory observations of their own. Mr. G. L. Banks reported a letter received from Messrs. Falconer & Chatterton, of Drury-lane Theatre, to the effect that every person engaged upon or about that establishment, including the company, orchestra, scenic artists, ballet, stage carpenters, property-men, supernumaries, money and check takers, box-keepers, cleaners, bill-posters, &c., in all 1,198 persons, had left subscriptions in the treasury on behalf of the Shakspeare Memorial Fund. The formation of a committee in aid, in the parish of Islington, was reported.

A Compositor's Leisure. — Amongst many interesting and curious items in the recent North London Industrial Exhibition, either encased or otherwise placed so as not to obtain examination by ordinary visitors, we would mention a volume titled "Autumn Rambles in the County of Kent," by Wm. Dampier (for some years a compositor in the printing-office of Messrs. Cox & Wyman, Great Queen-street, and now in the service of Mr. Hardwicke, the West-end publisher), consisting of 250 pages of manuscript and upwards of 100 views and maps. It was commenced in 1859, and completed in June, 1864; the whole of the compilation, writing, and delineation having been executed by him during leisure moments, before and after business hours. The adjudicators gave the author a first-class prize; and we should be glad if this mention of his work should assist him in finding a purchaser for it.

Workmen's Societies in Germany. — The subjoined is extracted from a Leipsic letter:—The congress of the workmen's societies of Germany has just met here. The question of workmen's houses was the subject of interesting communications from Professor Huber, who honoured the congress with his presence, and from M. Hegne, a great building contractor, of Leipsic, who with his own funds has erected a number of houses for the residence of artisans near the city. Like the Dolfus Society at Mulhausen, he gives workmen the opportunity of purchasing the houses they occupy by annual payments. The same builder is on the point of making a canal from Leipsic to Saale, for which he himself will find the capital. Unfortunately, instead of encouragements he meets with nothing but obstacles on the part of the bureaucracy and official architects, always jealous of their own initiative infallibility. The members of the congress devoted two hours to visiting M. Hegne's houses for workmen. The congress decided on recommending the establishment of lodging-houses for travelling artisans, and charged the managing committee to centralize in offices its demands for employment and offers of work.

Altar Cloth.—Messrs. Frank Smith & Co. have executed a richly-embroidered altar cover, designed by Mr. A. W. Blomfield, for the Radcliffe Infirmary Chapel, Oxford. It is a very satisfactory production both in respect of design and execution. The cost was 50*l*.

The Wallace Tower at Stirling. — This monument has now attained a height of 140 ft., leaving only the open crown at the top and the keeper's-house and the court-yard below to be completed. It is calculated that the entire design can now be completed for 3,000*l*., and an appeal is made for further support to the committee in carrying the enterprise to a satisfactory termination.

Church Extension in Leeds.—In May last it was announced that 25,000*l*. were ready to be subscribed for this purpose, on condition that a like sum was raised within six months. At a recent meeting it was announced that 28,327*l*. had been so subscribed, and that, therefore, the fund already available for church extension, in Leeds, is 53,327*l*. The meeting resolved still to go on with the subscription.

Exhibition in Copenhagen.—A committee appointed to inquire as to a general exhibition of the manufactures and works of art of all the Scandinavian states, in Copenhagen, has just published a report, in which it is proposed "That an exhibition of the products of the three Scandinavian states—Sweden, Norway, and Denmark—should take place in the summer of 1866, and that for that purpose a crystal palace should be constructed at the expense of the state and of the capital."

Prevention of Explosions in Kitchen Boilers.—A patent has been taken out by Mr. J. Cookson, plumber, for this useful purpose. A small open cistern is fixed anywhere convenient to the fire-side on a level with the boiler, and supplied with ball-tap. A spindle valve is fixed in this cistern, the spindle working upwards with a ball or float attached to it, so that the water, rising in the cistern, lifts the ball and closes the valve. A pipe runs from the boiler into the chimney, or where convenient, with a similar valve; and when this valve is open, the pipe acts as an escape or steam pipe. The whole is said to be easily attached to existing apparatus, or to any heating apparatus, for the prevention of explosions.

Academy of Sciences.—At the last sitting M. Becquerel read a paper on the preservation of cast iron and iron in fresh water. He had previously shown that when a plate of either material was in contact with a zinc plate not exceeding the hundredth part of the surface of the former, the intensity of the derived electrical currents on the protected metal (iron) would, in sea water, diminish as the distance from the point of contact of the two metals increased; but nevertheless so that the protection afforded by these derived currents would still extend to a considerable distance from the said point of contact. In fresh water there are fewer divided currents on the surface of the metal, a fact which M. Becquerel attributes to the difference of conductability of the two liquids and the degree of chemical action which each exercises on the zinc, since these two circumstances both tend to increase the intensity of the currents. M. Becquerel concludes with saying that a pile of 9,837 cannon-balls, 12 centimètres in diameter, may be protected from oxydation under water by surrounding it with zinc bands having an aggregate surface of two square mètres.

Belfast: Proposed Street Improvements.—Belfast contains certain narrow straits overcrowded at times by a trading community. The town progresses at the rate of 1,500 houses yearly. New streets, factories, warehouses, banks, shops, and public buildings, are rising on every side; while new docks and railway connexions will stimulate still more its progress as a great emporium. The question, therefore, has been started, What shall be done with these "throttled" arteries, which are daily growing worse? Having regard to this state of affairs, the borough surveyor has prepared a plan (of which the council have approved), which contemplates gradually carrying out the most needed improvements as opportunity may arise. It is proposed to widen existing streets as houses are rebuilt, only one side being taken down, where possible. The council are empowered to devote 1,500*l*. a year to forming a sinking fund for the purpose.

Weston-super-Mare.—Among the new works and improvements here are the Government fortifications and harbour at Brean Down, which were lately inaugurated; the new pier at Birnbeck, just commenced; the Weston-super-Mare and East Somerset Hospital; a new passenger-station, cost, 20,000*l*.; a new terrace at Claremont; new buildings on the South Parade for the West of England banking establishment and for Stuckey's banking company; new waterworks at Worlebury; new houses for the Coast-guard men; a covered riding-school; and shortly, probably, a new parish church.

Roman Remains at Shepton Mallet.—An interesting discovery has been made on part of the site of the New Brewery, now being erected at Shepton Mallet. In making an excavation the workmen came down upon a Roman kiln, or oven, used for baking pottery, numerous examples of which were found, several of them being very nearly perfect, never having been used. The kiln is to be preserved entire. This will be accomplished by turning a solid arch of masonry over the whole, to which access will be given by means of stone steps from the surface.

Hardening Cast Iron.—A patent has been taken out for a new method of hardening the surface of castings. When the piece is filed up, or otherwise finished, it is brought to a cherry red heat, and then immersed till quite cold in a solution composed of 1,080 grammes of sulphuric acid, and 65 grammes of nitric acid to 10 litres of water. It is added, that the thickness of the stratum hardened is sufficient for all ordinary purposes, and that the iron suffers no distortion.

Pumpology. — A handsome pump has been erected at Blandford, Dorsetshire, in which has been inserted a tablet inscribed as follows:—"Erected for public use by Thomas Horlock Bastard, and dedicated by him to the memory of his esteemed friends, George Coombe and Andrew Coombe, M.D., and of their zealous efforts to diffuse a knowledge of the human constitution and of the laws of nature as conducive to the preservation of health and the advancement of morality. October, 1864."

The Chorlton Hospital Contract. — The local guardians have had a long discussion relative to the advisability of placing the work in the hands of Messrs. Warburton, Brothers, as recommended. The committee, on the whole, were of opinion that the contract might be safely intrusted to the builders in question. Mr. Hereford said Mr. Worthington, the architect, and Mr. Taylor, the surveyor to the Board, had both asserted that it was impossible that the contract could be satisfactorily completed for the sum of 15,000*l*. That being the case, there would be a direct temptation to the builder to put in bad work and materials; and they could not guard against that, even though they were to place a clerk of the works at each corner of the building. Mr. Gawthorne said the main question with the committee had been whether they could save the 2,000*l*. difference between the tenders of Mr. Robert Neill and Messrs. Warburton. The strictest surveillance would be exercised, and there was reason to hope that the contract would be executed to the satisfaction of the guardians. On a division, a majority of thirteen against five voted in favour of the acceptance of Messrs. Warburton's tender.

The Sheffield Inundation.—The machinery that was created by Act of Parliament for the relief of the sufferers by the Sheffield flood has now got into working order. This measure constituted a commission for the ascertainment and assessment of damages, and Mr. William Overend, Q.C., was appointed chief commissioner, at a salary of 2,000*l*., and Messrs. J. J. Smith, of Sheffield, manufacturer, and Mr. F. Mills, of Duckmanton, Derby, were named as his colleagues, at salaries of 1,000*l*. each; and a clerk of the court was appointed at 700*l*. The commissioners sit in Sheffield. They have the fullest powers for the discharge of their peculiar duties, and there is no appeal from their decisions. As was anticipated, the number of claims sent in has been enormous. The 29th of October was the last day allowed by the Act, and on the evening of that day the claims numbered 7,200. The aggregate amount of the claims is said to be more than 500,000*l*., but a vast number of the claimants are accepting the sums offered by the water company, and others have found their own estimate of the damage materially reduced by the commissioners.

FURTHER DISCOVERIES AT KEISS.—The tomb of another chief has been discovered at Stain, near Keiss, in Caithness-shire. It has the hitherto unnoticed form of a square enclosure. The skeleton is 6 ft. 2 in. long, so that if this were a chief among the little people of the stone era, as it is called, they might well have held that "there were giants in those days." The skull is said to be of a very low type. Many stone weapons were found in the cist or tomb, which is based on an ancient sandy sea-beach, and filled with gravel. Similar implements, as lance heads, hatchet, hammer, &c., have elsewhere also been found.

THE LOCAL GOVERNMENT ACT AND IMPROVEMENT OF TOWNS.—A committee has been appointed by the Bristol Council, to consider the propriety of adopting this Act in the city of Bristol. At Ulverston the Act has been adopted, after repeated attempts to introduce it. Dr. Lankester had been lecturing the inhabitants on their sanitary necessities, and on the causes of the heavy mortality of the town. The majority of the ratepayers in favour of the introduction of the Act, however, was only forty-one. At Bangor, a seaport town in Ulster, Ireland, the Towns Improvement Act has been adopted, amid great rejoicing, illumination with tar-barrels, &c.

THE DOCKYARD EXTENSION AT CHATHAM.—Progress under the convict system is so slow here, that it has been calculated the extension works will not be completed before the year 1900, unless something be done to facilitate operations. The *Chatham News* remarks, that this would not matter much were the extension little needed, but that in reality it is already required. The site of the whole extension covers 300 acres, and the basin accommodation will be unparalleled, and the factories Cyclopian in proportions; but at present there is little to see, as the results hitherto are excavations and foundations merely, and are buried in the earth.

LENOIR'S GAS ENGINE.—This engine is not intended as a substitute for the steam-engine, but as a means of obtaining the equivalent of steam-power in cases where the use of steam could not be admitted. In outward appearance the Lenoir gas-engine does not differ widely from that of a horizontal steam-engine; but, with the gas-engine, the necessity for boiler and furnace, with the accompanying expense of stoker and fuel, does not exist. The power is generated within the cylinder itself; and, as no more is generated than is actually required for the stroke to be made, there can be no waste whilst the engine is at work, and the expense will cease entirely the instant the engine is stopped. After lying some time in abeyance, the development of Mr. Lenoir's invention in this country has been undertaken, it is said, and will be energetically carried on, by the Reading Ironworks Company, who propose to construct the machine in four sizes, from ½-horse to 3-horse power, the price of which will vary from 55*l.* to 125*l.*; and these amounts include the electric apparatus connected with the machine, which will require only the gas to be turned into it to set it to work. An annual royalty of from 2*l.* 2*s.* to 3*l.* 3*s.* is charged for the right to use the engine during the continuance of the patent; but this may be commuted by a small immediate payment.

DESTRUCTION BY FIRE OF THE GRAND JUNCTION WATER-WORKS.—To attack water-works is about as impudent a thing as fire can do: it is almost as bad as setting the Thames on fire, which, by-the-bye, old Van Helmont declares was often done when ships were supplied with Thames water, which first stank and then the vapours could be set fire to, when the water became quite pure again. The fire at the Grand Junction Water-works broke out in one of the engine pumping-houses connected with the company, at Notting-hill. The engine was in full operation at the time; and, on the alarm being given, the fire was found to have possession of the interior. The company have hydrants fixed in various parts of the works in case of fire; but of course, as in all such cases, they were not available: the lever for turning the water on them was fixed in the pumping-house itself, and the workpeople were hence unable to get at it on account of the place being in flames, and had to wait until the arrival of engines. By that time the fire had done its work, the roof had fallen in, and the place was a general ruin. The origin is attributed to the overheating of a steam-pipe. The works, it seems, were uninsured.

A NEW WAY OF PRINTING.—The description of a very rapid process for reproducing pencil drawings has been going the round of the Russian journals. The process will be particularly useful in campaigns, where it is often desirable to have a number of copies of a hasty pencil sketch. Some time ago M. Villani-Villanis remarked that if a sheet of paper on which a plan or any drawing or writing has been executed with pencil be moistened with acidulated water, and afterwards inked, the pencil marks alone will take the ink, and the whole drawing may then be transferred to metal or stone.

GIBRALTAR CATHEDRAL.—The first of a series of twelve stained glass windows has recently been placed in Gibraltar Cathedral. The cathedral is in the Moorish style of architecture, and the windows are each in one large compartment, with horse-shoe arch head. In the lower part of the window, which has just been completed, is represented the figure of St. Peter within a vesica, and in the upper or horse-shoe head, within a quatrefoil, St. Peter walking on the sea. The ground part and borders of the window are of geometrical work, arranged from patterns on the walls of the Alhambra. At the bottom of the window is the following inscription:—"To the Glory of God, and in memory of George Tomlinson, D.D., first bishop of Gibraltar, instituted 1842." The window is the gift of the present Bishop of Gibraltar, and is the work of Messrs. Horwood, of Mells, near Frome, who have also others of the series in course of construction.

URICONIUM.—In the report of a visit by the Liverpool Naturalists' Field Club to Shrewsbury and the site of ancient Uriconium, the ruins are thus described:—Arrived at the wicket which leads us to the ruins, we enter upon what at first would suggest the foundations for an extensive range of buildings, the erection of which had suddenly been cut short by want of funds. A closer inspection soon shows that they have vastly more significance. First, to our left is a cellar which has apparently been used by a Roman smith or enameller. There is a rude stone anvil, and also equally rude remains of a furnace. To the right is a square inclosure, said to have been a market-place, and to the entrance of which are two stone steps greatly worn, as if leading to a place of great public resort. Farther on we next enter upon a long series of hypocausts, consisting originally of a thick flooring of composite, resting upon piles of red tiles, and forming a series of passages through which hot air from a common furnace circulated and warmed the rooms, or baths, as the case might be, above. Several specimens of pavements have been discovered, in both red and white tiles; and in one instance some stucco-work on one of the walls had been preserved. Dr. Johnson pointed out an ashpit, in which they discovered pottery, coins, &c.; also, a square hypocaust, in which the skeletons of three persons were found, one in a crouching position, and near to which lay a small heap of coins, the dates of which ran from Tetricus to Valens. This led to the supposition, corroborated by other data, that it was about the year 350 that Uriconium was destroyed. Other human remains, found in various parts, showed that the slaughter at the sacking of the town must have been fearful. The excavations extend over a space of two acres, but two-thirds were again filled up. The ruins of the city are supposed to cover an area of three miles in circumference. The old wall, which rises to a considerable height, stands like a guardian of the abode of the dead; and well it has kept its trust for fifteen hundred years.

ARCHITECTURAL ASSOCIATION, VOLUNTARY EXAMINATION CLASS.—The class will meet on Tuesday next, the 22nd inst., at 7·30 p.m. as usual, when Mr. Thomas M. Rickman will treat upon "Gibbon's Law of Contracts."

TENDERS.

For alterations at the corner of Castle-road, Kentish Town. Mr. James Harrison, architect:—

Henson	£225	0	0
Green	225	0	0
Hyde	198	0	0
Batt	188	0	0

For pair of semi-detached residences, at Woodford, Essex, for Mr. Branscombe. Mr. G. R. Noble, architect. Quantities supplied by Messrs. Linsdell & Giffard:—

Hill & Keddell (accepted)	£1,595	0	0

For the erection of three shops, in Alexander-street, Blue Anchor-road, Bermondsey, for Mr. H. Mullard:—

West & Morse (accepted)	£659	0	0

For the erection of Brighton workhouse. Quantities supplied by Mr. G. Maynard and Messrs. J. C. & G. Lansdown:—

Henshaw	£46,240	0	0
Colls & Son	44,444	0	0
Simms & Marten	41,693	0	0
Fry & Pepper	40,118	0	0
Myers & Son	39,350	0	0
Moxon	39,294	0	0
Smith	39,163	0	0
Sawyer	38,777	0	0
Robinson	37,660	0	0
Cheesman & Co.	36,341	0	0
Anscombe	35,947	0	0
Chappell	35,854	0	0
Manley & Rogers	35,554	0	0
Kemp	35,100	0	0
Reynolds	30,500	0	0

For villas, at Burton-on-Trent, for Mr. C. Beard. Mr. Jas. Fairclough, architect:—

Smith	£912	0	0
Deaville	906	0	0
Wileman & Wigley (accepted)	900	0	0

Residence at Eltham.—The quantities were taken out by Mr. J. G. Smither, not "J. G. Lunther," as printed.

TO CORRESPONDENTS.

C. W. A.—Messrs. E.—F. R. W.—M. F. D.—C. J. S.—J. T. L.—J. H.—J. T. & Son (from the neighbourhood. Some statement appeared in a local paper).—Messrs. B.—Progress (should send his name and address).—C. P. (arch-way would be more correct).—J. G. S.—W. H.—Dr. B.—T. E. K.—G. C.—Rev. Mr. B.—H. & K.—E. B. K.—Messrs. L.—Mr. T.—J. W.—J. H.—Constant Reader.—J. T. L. (in type).

We are compelled to decline pointing out books and giving addresses.

All statements of facts, lists of tenders, &c., must be accompanied by the name and address of the sender; not necessarily for publication.

NOTE.—*The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors.*

The Publisher cannot be responsible for ORIGINAL TESTIMONIALS *left at the Office in reply to Advertisements, and strongly recommends that* COPIES ONLY *should be sent.*

Advertisements cannot be received for the current week's issue later than **FIVE o'clock, p.m.,** *on Thursday.*

[ADVERTISEMENT.]

CHURCH, TURRET, and STABLE CLOCKS. J. W. BENSON, having erected steam-power and improved machinery for clock-making, at the manufactory, Ludgate-hill, will be glad to furnish to clergymen, architects, and committees, Estimates and Specifications of every description of Horological Machine, especially cathedral and public clocks, chiming tunes on any number of bells. A descriptive pamphlet on Church Clocks post free for one stamp. Watch and Clock Maker by Warrant of Appointment to H.R.H. the Prince of Wales, and maker of the great clock for the Exhibition, 1862. 33 & 34, Ludgate-hill, E.C. Established 1749.

ADVERTISEMENTS.

By one of the Contributors to "The Reason Why" Series. Now ready, cheaper edition, cr. 8vo. pp. 384, 2s. 6d. cloth (postage 4d.)

THE HISTORICAL FINGER POST: a Handy Book of Terms, Phrases, Epithets, Cognomens, Allusions, &c., in connexion with Universal History.
By EDWARD SHELTON, Assistant Editor of "The Dictionary of Daily Wants," &c. &c.

"A handy little volume, which will supply the place of 'Haydn's Dictionary of Dates' to many persons who cannot afford that work. It contains some things that Haydn's book does not."—*Bookseller.*
"It is to the historical student and antiquarian what 'Inquire Within' is to the practical housewife."—*Volunteer Service Gazette.*
London: LOCKWOOD & CO. 7, Stationers'-hall court.

On the 24th of November will be published,

THE BRITISH ALMANAC for 1865.
Sewed in a Wrapper, price 1s.

THE COMPANION to the ALMANAC.
Sewed in a Wrapper, price 2s. 6d.

CONTENTS:

THE INDIAN MUSEUM.
RAILWAYS IN THEIR SOCIAL RELATIONS. By JAMES THORNE.
RECENT OBSERVATIONS AND RESEARCHES ON THE PHYSICAL CONSTITUTION OF THE SUN. By E. W. BRAYLEY, F.R.S.
HEALTH OF THE BRITISH ARMY IN INDIA.
WORKING MEN'S CLUBS. By JOHN PLUMMER.
PROGRESS OF THE LIMITED LIABILITY SYSTEM.
ARCHITECTURE AND PUBLIC IMPROVEMENTS, 1864. By JAMES THORNE. General Progress; Art and Public Monuments; Public and Sanitary Improvements; Churches and Chapels; Buildings for Public Purposes; Buildings connected with Art, Science, and Education; Street Architecture; Bridges, Docks, &c. With Woodcuts.
With the other usual Articles on the Legislation, Statistics, &c. of 1864.

THE BRITISH ALMANAC and COMPANION.
Together, in cloth boards, lettered, price 4s.
London: KNIGHT & CO. 90, Fleet-street; and sold by all Booksellers in the United Kingdom.

FOR CHRISTMAS AND NEW YEAR'S GIFTS.

DR. FLETCHER'S GUIDE to FAMILY DEVOTION. A sale of 100,000 copies induced the Author to improve and enlarge the work. It comprises 730 Services, each including a Hymn, Prayer, Portion of Scripture, and appropriate Reflections, being one for the Morning and Evening of every day in the year. Also an Appendix, containing Prayers for Particular Occasions. One vol. royal 4to. 26 Engravings, 28s. cloth gilt.
Also in calf and morocco bindings.
London: JAMES S. VIRTUE, City-road and Ivy-lane.

In One Volume, demy 8vo. price 18s. illustrated with numerous Plans, Sections, and Sketches of Gardens and General Objects, a New Edition, greatly enlarged, of

HOW TO LAY OUT A GARDEN.

Intended as a General Guide in Choosing, Forming, or Improving an Estate, from a Quarter of an Acre to a Hundred Acres in Extent.

By EDWARD KEMP, Landscape Gardener, Birkenhead.

"When noticing this work on a former occasion, we expressed our belief that it was one of the best books on pure garden design in the English language. Our opinion remains unchanged. There may indeed be more learned and classic works on the subject of landscape gardening; but we doubt if there is one that contains so much useful information and practical details, relative to the laying out of a garden, as are to be found in this unpretending volume."—*Gardener's Chronicle.*

BRADBURY & EVANS, 11, Bouverie-street, E.C.

Reduced from 4l. to 20s. carriage free 22s. the remaining copies (only 120) of

SHAW'S (RICHARD NORMAN) ARCHITECTURAL SKETCHES from the CONTINENT: a series of Views and Details, from France, Italy, and Germany. 100 plates, folio, half morocco, gilt edges.

Reduced from 4l. to 22s. carriage free 24s.

NESFIELD'S SPECIMENS of MEDIÆVAL ARCHITECTURE, from Sketches made in France and Italy. 100 plates, folio, half morocco, gilt edges.

Post-office orders, payable at Holborn Office, to BRADLEY THOMAS BATSFORD, 52, High Holborn, London, W.C. B. T. B. begs to say that the above are the entire remainder of these two valuable works.

PERSPECTIVES, GEOMETRICAL and other DRAWINGS,

MADE and COLOURED by the Advertiser, from rough Sketches or otherwise.

ADDRESS, C. 70, CAMBERWELL NEW-ROAD, S.

MR. JAMES FENTON, ENGINEER and SURVEYOR for six years to the Croydon Local Board OFFICES REMOVED to 19, GREAT GEORGE-STREET, WESTMINSTER.

RAILWAY and ESTATE SURVEYING and LEVELLING,

In any Part of the Country.

By C. C. No. 17, Hill-street, S.W.

MR. MARDON, ARCHITECTURAL DRAUGHTSMAN and COLOURIST. Perspectives, Competition, and other DRAWINGS prepared.—Address, Bedford Chambers, Southampton-street, Strand, W.C.

ENGINEERING, SURVEYING, ARCHITECTURE, &c.—PRACTICAL INSTRUCTION given in Civil Engineering, Surveying, Levelling, Plan Drawing, Measuring, Estimating, &c. in a short Course of Office and Field Work, on moderate terms, including the use of the instruments, &c.—For Prospectuses, apply at the Offices of Messrs. HYDE, SMITH, & LEWIS, Civil Engineers, Surveyors, Architects, &c. 24, Guildford-street, Russell-square. N.B. DAY and EVENING Instruction given in Architectural Drawing, Colouring, Taking out Quantities, &c. &c.

TO CIVIL ENGINEERS AND SURVEYORS.

PARLIAMENTARY WORK.—An ENGINEER and SURVEYOR, of long experience, is open to an ENGAGEMENT.—Address, K. M. No. 2, Grosvenor-villas, Stockwell-green, S.

SESSION, 1864-5.

PLANS and SECTIONS for DEPOSIT, LITHOGRAPHED WITH RAPIDITY.

By ROBERT W. SPRAGUE & CO.

2, BAQUET COURT, FLEET STREET, E.C.

SEWAGE of TOWNS.—JOHN MARRIAGE, the Lessee of the Lands upon which the Croydon Sewage is applied, ADVISES and ASSISTS Boards of Health, Corporations, Owners of Estates, and Agriculturists, &c. &c. as to the APPLICATION of SEWAGE to LAND, the mode of its distribution, the suitability and manner of laying out such Land, and all the details connected with the profitable Utilisation of Sewage.—Grassmere, near Mitcham, Surrey.

PARTNERSHIP.—To Carpenters, Builders, or Others, requiring Assistance.—A Gentleman of experience is OPEN to devote time and invest capital, in an old-established business in the above line. Country not objected to.—Address, in first instance (prepaid), to Z. Y. X. care of H. Robinson, Post-office, Clifton-street, E.C.

PARTNERSHIP.—An Architect and Surveyor, established in a West End suburb, and with a general practice, increasing so as to require the aid of a PARTNER, desires to meet with a Practical and Christian Man. Reciprocal terms. Full particulars exchanged.—Address, S. Post-office, High-street, Nottinghill, W.

TO ARCHITECTS, BUILDERS, CONTRACTORS, &c.—PARTNERSHIP.—The Advertiser (articled to the profession) wishes to treat for the PURCHASE of a SHARE in a well-established BUSINESS.—Address, DELTA, 2, Queen's-road, Kingston, near Portsmouth.

ESTATE CARPENTER WANTED.—Must be a skilful workman: capable of house-fitting; able to measure timber, sawing, &c.; write a good hand, and keep small accounts. A Churchman, a married man without incumbrance, preferred. Wages, 1l. per week, with house and garden.—Address, in own writing, giving references, age, &c. to Mr. LEWIS TAYLOR, Estate Office, Mells, Frome, Somerset.

TO PLUMBERS AND ZINC WORKERS.

A HANDY MAN can have CONSTANT EMPLOYMENT.—Apply to J. SELDEN, Ironmonger, 129 King-street West, Hammersmith.

AS JUNIOR CLERK.—WANTED, an intelligent YOUTH in a BUILDER'S OFFICE. Must be quick and correct at figures, and write a good hand.—Address, L. M. care of Mr. Felgate, 101, Curtain-road, Shoreditch, N.E.

TO YOUTHS.

A VACANCY in an Architect and Surveyor's Office, in a West End suburb, for an intelligent and Christian YOUTH, either as Out-door PUPIL or IMPROVER. If Pupil, premium moderate.—Address, E. Cribb's Library, Westbourne-grove, Bayswater.

THE Local Board for the District of Atherton require a competent person as CLERK to the Board, at a salary at the rate of 80l. per annum. He will be required to keep the books and accounts of the Board, and also to complete and take surveys and levels, and make plans and sections and estimates for streets, sewers, &c. under the Local Government Act. A surveyor, to superintend the construction of roads, sewers, &c. is already engaged.—Applications, with specimens of plans and testimonials, to be sent to THOMAS LEE, Esq. Clerk of the Atherton Local Government Board, Atherton, near Manchester, on or before the 23rd instant.

Dated this 10th day of November, 1864.

ONE of the largest and best-known Gilt-Moulding Manufacturers on the Continent requires an AGENT of respectability and standing to represent them in England, either on his own account or commission.—Address, S. T. at Messrs. Samuel Straker & Sons, 23, Leadenhall-street, E.C.

BOROUGH of WOLVERHAMPTON.—SURVEYOR to the CORPORATION and LOCAL BOARD of HEALTH.—The Town Council are desirous of receiving applications from CANDIDATES for the Office of SURVEYOR to the Corporation and Local Board of Health. Printed particulars as to the duties of the office may be had on application to the Town Clerk. Salary, 400l. per annum, to commence 1st of January, 1865; the Surveyor to provide the necessary office assistance, except a clerk of the works, to be employed in carrying out the Main Drainage Works. Security required, 500l. The successful candidate may have access to the plans, books, and papers, relating to the office, immediately after his appointment, with a view to his becoming acquainted with his duties. Testimonials must accompany written applications, addressed "The Chairman of the General Purposes Committee, Town-hall, Wolverhampton," and be sent in not later than the 21st NOVEMBER, 1864.

EDWIN JOHN HAYES,
Town Clerk and Clerk to the Local Board.

Town-hall, Wolverhampton, October 27, 1864.

TO ARCHITECTS' ASSISTANTS.

WANTED, by a Firm of ARCHITECTS, in a large provincial city, an experienced ASSISTANT, thoroughly qualified to superintend the drawing office, and to execute all working drawings, in Italian or Gothic, from the principal's sketches. One preferred who has occupied a similar position in a first-class office, and had experience as clerk of works. A liberal salary and a permanency, with prospective advantages. References required for character as well as ability.—Address, A. B. District Post-office, London, N.W.

WANTED, for a Manchester Office, a thoroughly qualified ARCHITECTURAL ASSISTANT, well up in Gothic and Italian, and an able colourist; and to take the management of the office. Salary to commence with 200l. per annum.—Address, E. H. D. Office of "The Builder."

TO BUILDERS' FOREMEN.

WANTED, at Canterbury, a SHOP FOREMAN of JOINERS, capable of conducting the general works of a Builder's Shop. Must be thoroughly acquainted with detail, and competent to set out joiners' work in all its branches; also must make himself generally useful in the shop, and to give account of time and material.—Apply by letter, stating age, wages, and where last employed, to GASKIN & GODDEN, Contractors, Canterbury.

WANTED, a good MASON, to Work Hard and Soft Stone.—Apply to Mr. BACKHURST, Twickenham Park, Middlesex.

TO CLERKS OF WORKS.

WANTED, a thoroughly experienced CLERK of WORKS, to undertake the Management of an important building in the provinces. None need apply except they can show first-rate testimonials, and who have been engaged upon buildings in which iron construction has been largely used.—Apply, by letter only, to JOHN NORTON, Esq. 24, Old Broad-street, London.

TO ASSISTANT ENGINEERS AND MILLWRIGHTS.

WANTED, a Good DRAUGHTSMAN, well up in machinery. One who has had experience in corn-mills and with a knowledge of architecture preferred.—Address, stating terms and other particulars, L. Z. Office of "The Builder."

WANTED, in a London Builder's Office, a competent Clerk as BOOK-KEEPER.—Address, with full particulars and salary required, to D. E. care of Messrs. Freeman, 48, Fenchurch-street, City.

WANTED, a steady respectable Man, to act as OUT-DOOR SUPERINTENDENT of STREET PAVING, FLAGGING, and the Repairs and Formation of Sewers. One who has had experience in such work, can write fairly, and take measurements of the work as it proceeds, will be preferred. The engagement would probably be permanent, but would be made, and the salary paid, monthly, at the rate of 100l. per annum.—Apply, with testimonials as to previous employment, to the City Surveyor, Norwich, not later than SATURDAY, the 21th NOVEMBER.

WANTED, a thoroughly practical Man as CLERK, with good references, who can trace plans, take out quantities, and measure up work of every description belonging to a railway and general contractor. He must be a good accountant, and a person of trust, and willing to make himself generally useful.—Apply, stating reference and salary, to R. FOCKLINGTON, Sheepbridge, near Chesterfield, Derbyshire.

TO STONEMASONS.

WANTED, several GOOD HANDS.—Apply on the Works, Beaumont Lodge, Old Windsor, Berks.

WANTED, immediately, in the Office of an Architect and Surveyor, a JUNIOR ASSISTANT. He must be able to trace and copy drawings, and write a good hand.—Address, stating terms and references, to O. P. Office of "The Builder."

WANTED, in a Builder's Office, a Young Man, capable of KEEPING PRIME COST BOOKS and MAKING OUT GENERAL ACCOUNTS. A man brought up to Joiner's Work, if a good penman and quick at figures, preferred.—Apply to Mr. CHAS. HIDE, Vine Cottage, Littlehampton.

TO SURVEYORS' ASSISTANTS.

WANTED, a thoroughly competent CLERK, who has been accustomed to London practice.—Apply, with testimonials, to Messrs. LANDER & BEDELLS, No. 4, Great James-street, Bedford-row, W.C.

WANTED, a good LEVELLER, also a good SURVEYOR, temporarily.—Address, by letter only, with references and terms, to T. W. 11, Upper Chenye-row, Chelsea.

TO CARPENTERS AND JOINERS.

WANTED, by a Young Man used to the Bench, a SITUATION as IMPROVER to the above.—Address, CYRIL, 35, Cranbrook-street, Old Ford-road, Victoria Park.

TO PLUMBERS, BUILDERS, &c.

WANTED, by a Young Man, a SITUATION as PLUMBER, or THREE-BRANCH HAND.—Address, C. H. No. 8, Thomas-street, Kennington Park.

TO BUILDERS, PLUMBERS, &c.

WANTED, a SITUATION, by a good PLUMBER, or as THREE-BRANCH HAND.—Address, PLUMBER, Mr. George Cook, Wheelwright, Upper Bryanstone-street, Edgware-road, W.

TO GAS AND HOT-WATER ENGINEERS AND FITTERS.

WANTED, EMPLOYMENT, by a Young Man, aged 23. Used to bellhanging. Town or country.—Address, H. C. 17, Hollen-street, Oxford-street, W.

WANTED, by a Young Man, a CONSTANCY in a JOBBING SHOP, or as Paperhanger, Painter, Glazier, or Jobbing Plumber. Wages 24s. per week. Town or country.—Address, H. L. 17, Castle-street, Holborn.

TO CIVIL ENGINEERS AND SURVEYORS.

WANTED, a permanent ENGAGEMENT after Christmas, by a first-class LAND-SURVEYOR, LEVELLER, and DRAUGHTSMAN, who has held a responsible situation for the last eight years. Would prefer town, or to go abroad. Address, A. Z. Post-office, Chippenham.

TO SAW-MILL PROPRIETORS.

WANTED, a RE-ENGAGEMENT, as MANAGER or WORKING FOREMAN. A Joiner by trade. Good references from former employers.—Address, S. J. 9, Upper Winchester-street, Caledonian-road, N.

TO BUILDERS AND OTHERS.

WANTED, EMPLOYMENT as GRAINER and PAPERHANGER. Wages not so much an object. Specimens of work can be seen.—W. 20, Pancras-street, Tottenham-court-road, W.C.

TO BUILDERS AND DECORATORS.

WANTED, by a good GRAINER, &c. a JOB.—Address, by letter, J. P. No. 9, Lucas-street, Commercial-road, E.

TO BUILDERS, &c.

WANTED, by a respectable, steady Man, a RE-ENGAGEMENT, as Shop or Out-door Working Foreman of Carpenters and Joiners, or the Charge of a Job. The advertiser would not object to take work by the piece. Six years' good references. Aged 30 years.—Address, E. S. 9, Lampster-street, Shepperton-street, Islington.

TO BRICKMAKERS AND BUILDERS.

WANTED, by a thoroughly practical Brickmaker, a SITUATION as FOREMAN. Has had the management of extensive brickworks for upwards of eighteen years; can keep accounts. Good references. Aged 40.—Address, C. B. 9, Brook-terrace, Brook-street, Upper Clapton, near London.

TO BUILDERS AND JOBBING PLASTERERS.

WANTED, by a respectable Married Man, a SITUATION as PAINTER, GLAZIER, and GRAINER. Understands all kinds of staining, and can do a little writing.—E. CUMMINGS, 9, New-street, St. John's Wood. Town or country.

TO ARCHITECTS AND BUILDERS.

WANTED, by a thoroughly practical Man, a RE-ENGAGEMENT as CLERK of WORKS or FOREMAN. Just finishing some works. Good reference from present architect.—Address, R. H. F. 35, Alfred-street, Bedford-square, W.C.

WANTED, by a steady Man, who has a thorough practical knowledge of saw sharpening, timber-frame working, and many years' experience in one of the largest firms in London.—Address, L. M. Mr. Travers's, No. 174, Commercial-road, Landport, Portsmouth.

TO JOINERS, &c.

WANTED, by a Young Man, aged 27, a SITUATION as GENERAL or WORKING FOREMAN, at or near Birmingham preferred. Good wages expected.—Address, D. 4, Market-street, Darwen, Lancashire.

WANTED, by the Advertiser, a SITUATION as ASSISTANT, in an Architect's Office. He is fully competent to prepare working, detail, and finished drawings, understands quantities, and is acquainted with the general routine of an office.—Address, F. H. R. 41, Cranbourn-street, W.C.

TO BUILDERS, PLUMBERS, AND OTHERS.

WANTED, by a Young Man, a SITUATION as PLUMBER, PAINTER, and GLAZIER. Can do plain zinc work. Town or country. Good reference if required.—Address, A. B. 7, Bolingbroke-road, Battersea.

WANTED, by the Advertiser, a SITUATION as CLERK in a Builder's Office. Aged 20. Satisfactory references can be given.—Thirteen years' character.—Address, T. H. care of Mr. Hunt, Bookseller, Biggleswade.

TO DECORATORS, &c.

WANTED, by a good SIGN and GLASS WRITER, GRAINER, MARBLER, &c. a SITUATION in London. Can design and paint ornament and figure.—Apply, J. C. Office of "The Builder."

TO BUILDERS AND CONTRACTORS.

WANTED, a RE-ENGAGEMENT, by a Practical Man, as FOREMAN of BRICKLAYERS. Town or country. Good references.—Address, J. P. No. 20, Werrington-street, Oakley-square, N.W.

TO BUILDERS AND ARCHITECTS.

WANTED, by an experienced GENERAL FOREMAN, a SITUATION to TAKE CHARGE of a JOB, or as an ASSISTANT to an Architect. Good references can be given.—Address, C. M. E. Mr. Farrett, News Agent, 15 Palace-road, Lambeth.

TO TIMBER MERCHANTS AND BUILDERS.

WANTED, by a Young Man, aged 22, a SITUATION as CLERK. Has been in a timber yard in the country. Seven years' good character from last employer.—Address, A. U. Post-office, Basing-stoke.

TO PLUMBERS AND BUILDERS.

WANTED, by a Young Man, who is a first-class plumber, a SITUATION. No objection to fill up time with painting or glazing. Good references, if required. Town or country.—Address, E. M. 45A, Ossulston-street, St. Pancras.

WANTED, by a thoroughly practical Man, of many years' experience on First-class Works, a RE-ENGAGEMENT as CLERK of WORKS or General FOREMAN. First-class testimonials.—Address, R. G. Office of "The Builder."

TO CARPENTERS, UPHOLSTERERS, &c.

WANTED, a SITUATION, by the Advertiser, as a BOX and PACKING-CASE MAKER. Is a good jobbing carpenter. Terms moderate.—Address, C. W. 47, East-street, Manchester-square.

TO BRICKMAKERS.

WANTED, an ENGAGEMENT, by a thoroughly practical Man, of many years' experience as Foreman or Manager. Has a thorough knowledge of making and burning by Clamps, Scotch, Suffolk, or other Kilns. Has had large experience with machine making and hand moulding. Good reference and testimonials.—Address, R. C. 1, Doggett-square, Canal-road, Strood, Kent.

TO BUILDERS AND SMITHS.

THE Advertiser wants a SITUATION as a First-class BUILDER'S SMITH. He is competent of undertaking the work piecework, if required, or in a firm where they keep their own smith. Can have first-class references.—Address, W. G. 9, Corrugated-row, Queen's-road, Bermondsey, London.